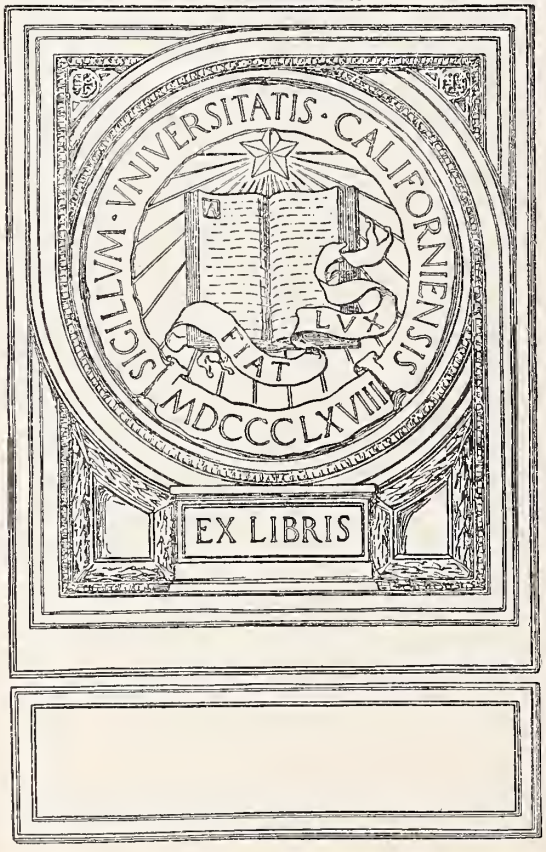
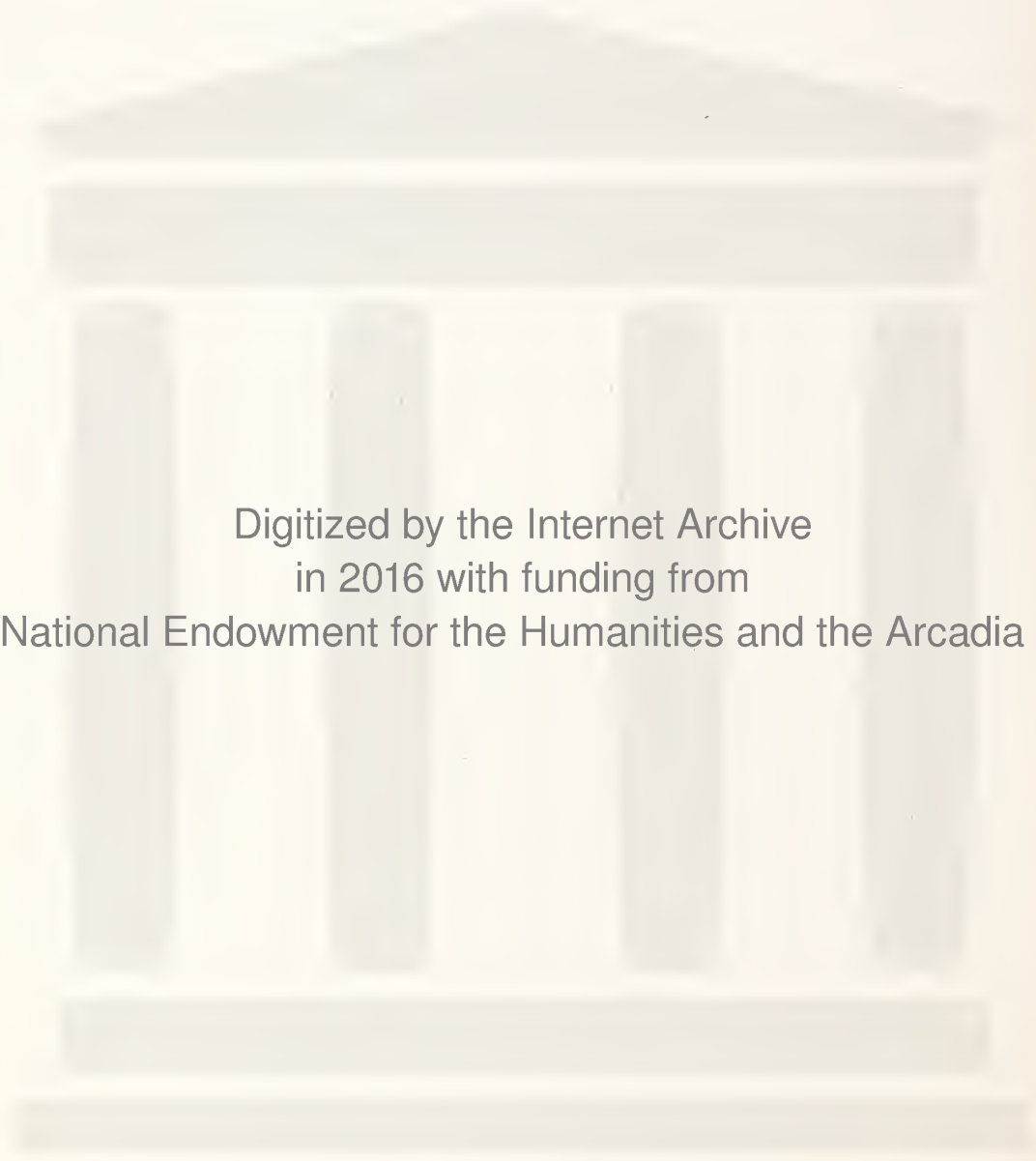
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in severe respiratory infections
refractory to other measures..

CHLOROMYCETIN®

(chloramphenicol, Parke-Davis)

for established clinical efficacy against susceptible organisms[1-1



In Friedlander's Pneumonia[3,13]

Although the prognosis in Friedlander's pneumonia is poor, treatment with CHLOROMYCETIN has shown a good response when susceptible strains of *Klebsiella pneumoniae* are incriminated.

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In Staphylococcal Pneumonia[1-8,13]

CHLOROMYCETIN continues to remain effective against many resistant strains of staphylococci, and—alone or in combination with other antibiotics—should be considered when other antistaphylococcal drugs are ineffective.

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CHLOROMYCETIN (chloramphenicol, Parke-Davis) is available in various forms, including Kapseals® of 250 mg., in bottles of 16 and 100. See package insert for details of administration and dosage.

Warning: Serious and even fatal blood dyscrasias (aplastic anemia, hypoplastic anemia, thrombocytopenia, granulocytopenia) are known to occur after the administration of chloramphenicol. Blood dyscrasias have occurred after both short-term and prolonged therapy with this drug. Bearing in mind the possibility that such reactions may occur, chloramphenicol should be used only for serious infections caused by organisms which are susceptible to its antibacterial effects. Chloramphenicol should not be used when other less potentially dangerous agents will be effective, or in the treatment of trivial infections such as colds, influenza, or viral infections of the throat, or as a prophylactic agent.

Precautions: It is essential that adequate blood studies be made during treatment with the drug. While blood studies may detect early peripheral blood changes, such as leukopenia or granulocytopenia, before they become irreversible, such studies cannot be relied upon to detect bone marrow depression prior to development of aplastic anemia.

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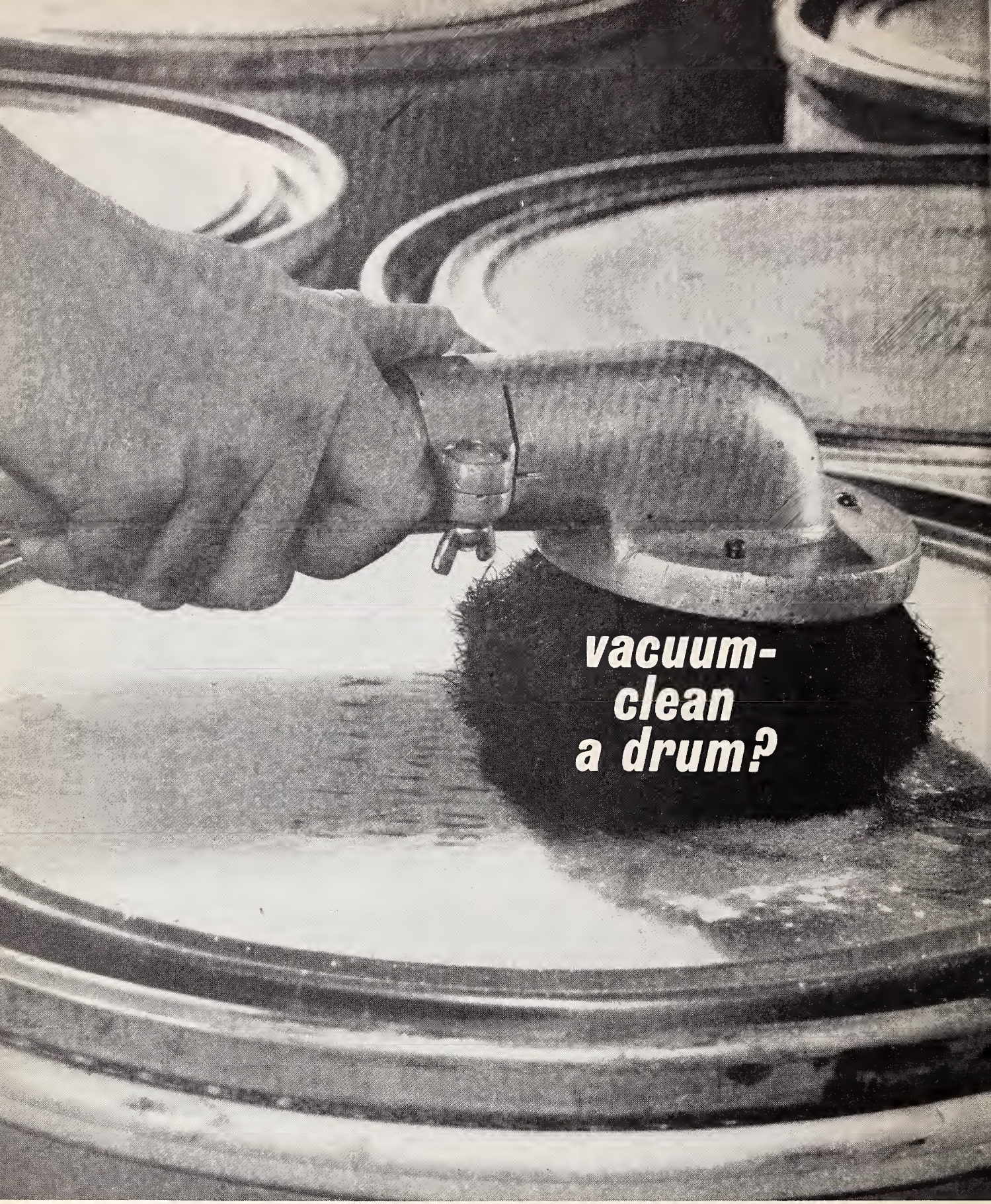
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See the President's Letter on Page 41



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Clinical Significance Of Serotonin *

- the Carcinoid Syndrome
- Endotoxin and Anaphylactic Shock
- and the Homograft Reaction

J. C. ROSENBERG, M.D.†
Staten Island, N.Y.

Serotonin from argentaffine cells of the intestine profoundly affects the vascular system. Anaphylaxis and homograft rejection may be related in some indirect manner to Serotonin responses in the body. The author presents several concepts that have far-reaching possibilities for further advancement in this stimulating field of work.

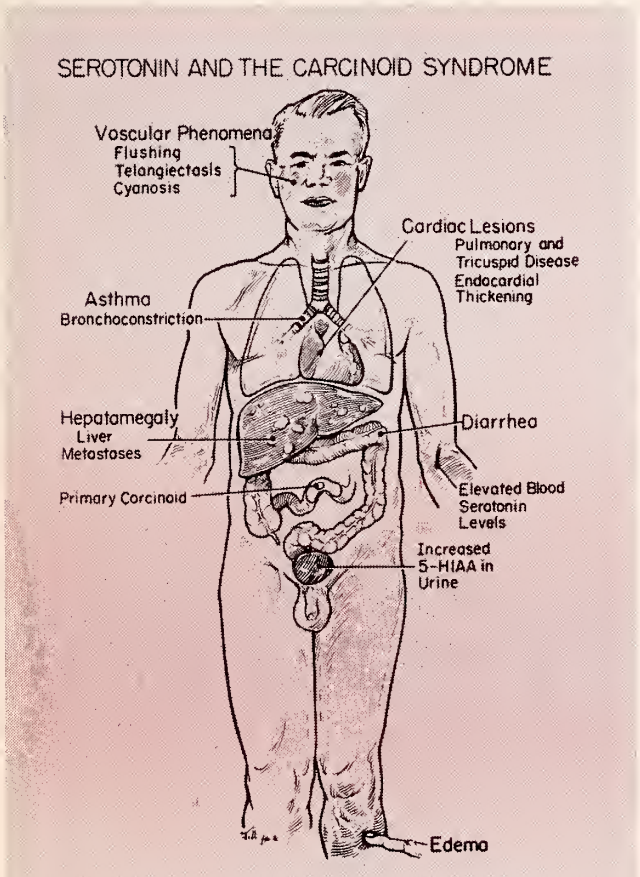


Figure 1. Diagrammatic representation of the clinical and laboratory findings in the carcinoid syndrome.

In 1948, RAPPORT and his co-workers isolated a serum vasoconstrictor substance from blood, which they called, "Serotonin" (sero-, because it came from serum; -tonin because it produced an increased "tone" of blood vessels).[1] Their success was the culmination of a series of investigations initiated some 80 years previously by the famous physiologist of Leipzig, Carl Ludwig. In 1952, an Italian pharmacologist, Vittorio Erspamer, recognized that the argentaffine or chromaffine cells of the mucosa

* Presented at the USPHS Clinical Society, National Institutes of Health, Bethesda, Maryland, April 4-7, 1962. This investigation was conducted at the University of Minnesota Hospitals with the aid of Grant No. T-121A from the American Cancer Society and at the USPHS Hospital, Staten Island 4, New York.

† Senior Surgeon (R), USPHS, Assistant Chief of Surgery USPHS Hospital, Staten Island 4, New York, Former Post-doctoral Research Fellow of the National Cancer Institute, USPHS.

of the gastrointestinal tract (also called Kulchitzky cells) were responsible for the elaboration of this substance, which he had previously called "enteramine."[2] Two years later, a group of Swedish internists, led by Ake Thorson, described a syndrome in patients with carcinoid tumors of the intestine, which they related to the serotonin-producing properties of the carcinoid.[3]

Thus, within a relatively short period of time, a great deal of intriguing information on serotonin (5-hydroxytryptamine) was obtained. The newly-acquired knowledge had a widespread interest for investigators and clinicians in almost all of the medical sciences. This interest was reflected in the large number of publications which have appeared since investigations involving serotonin began. In 1954, Erspamer reviewed the world literature and covered over 300 papers.[4] From 1954 to 1958, Page found 529 publications devoted to this substance.[5]

Serotonin has continued to constitute something of an enigma with respect to its physiologic actions as well as with respect to its role in various pathologic states. It is the purpose of this presentation to review some of the salient facts concerning serotonin which might prove to be of interest and value to clinicians. The malignant carcinoid syndrome is undoubtedly the most prominent clinical situation involving serotonin. The role of serotonin in endotoxin and anaphylactic shock and the homograft reaction will also be discussed. Finally, the commonly used method of determining 5-hydroxyindoleacetic acid excretion as a reflection of serotonin metabolism will be evaluated.

The Malignant Carcinoid Syndrome

Although a carcinoid tumor is usually "biochemically active," its "clinical activity" is dependent upon the amount of serotonin delivered to the systemic circulation. If a small mass of tumor secretes small amounts of this hormone into a capillary bed which ultimately drains into the liver, where the serotonin is metabolized, the signs and symptoms of the carcinoid syndrome are not likely to be found. The diagnosis of a biochemically active tumor can be made by assaying a portion of the tumor removed at laparotomy, by determining the circulating serotonin concentration, or by estimating the amount of 5-hydroxyindoleacetic acid excreted in the urine. (See Figure 1.)

Biochemical Findings

The qualitative and quantitative urinary estimation of 5-hydroxyindoleacetic acid, the end product of serotonin metabolism, has been found to be most practical.[6,7] However, both tests cannot be relied upon completely when negative. An output in excess of 15 mg. of 5-hydroxyindoleacetic acid per day indicates excessive serotonin production due to carcinoid. The qualitative test can detect only concentrations in excess of 40 mg. per liter of urine and is therefore not very sensitive.[8] Drugs such as chlorpromazine and phenergan may also produce false negative results. However, the qualitative test is highly specific when positive. The drawbacks of the quantitative test for 5-hydroxyindoleacetic acid excretion have recently been highlighted by the report of a patient with the signs and symptoms of carcinoid tumor and hyperserotoninemia, but a normal 5-hydroxyindoleacetic acid excretion.[9] The quantitative determination of 5-hydroxyindoleacetic acid, as described by Udenfriend et al., can also be misleading if it is performed on a concentrated sample. In such a case the recovery of 5-hydroxyindoleacetic acid is poorer than in a dilute sample.[10] A low concentration is therefore obtained which may add confusion, rather than clarity, to the diagnosis. This occurred in the patient whose case report is appended to the end of this discussion.

Signs and Symptoms

In addition to the biochemical findings, it is mandatory that the signs and symptoms of the carcinoid syndrome be demonstrated before a diagnosis of a clinically active tumor is made. The syndrome is by no means constant from one patient to another. It is characterized by vasomotor disturbances which are usually manifest as paroxysmal attacks of "flushing" of the face, neck and upper chest, which usually lasts less than 10 minutes but may persist for as long as 30 minutes.[11] The patient may complain of a hot, stiff, swollen feeling and

paresthesia of the fingers. The flush then fades from the center outward in an erratic fashion, leaving areas of erythema which fade more gradually. A fall in blood pressure of variable degree, with or without syncope, may also be present. Telangiectasia or a persistent cyanotic rubor of the skin may gradually develop as the disease progresses and persists. This combination of findings can be seen in about 80% of patients with the carcinoid syndrome.[12] Robertson and his co-workers have been able to produce flushing in patients with the carcinoid tumor by the intravenous administration of epinephrine. They have concluded from their experiments that serotonin is *not* the agent mediating the flush.[13]

Gastrointestinal difficulties, consisting of crampy abdominal pain, diarrhea and vomiting appear in 76%.[12] Hepatomegaly is found in 71%, since liver metastases are usually but not always present.[12] Edema is present in 63% of patients with the syndrome.[12] About half of the patients with the syndrome have cardiac lesions consisting of endocardial fibrosis, pulmonary stenosis and tricuspid stenosis or insufficiency.[12] Asthmatic symptoms occur in about one quarter of the patients.[12] (See Figure 1.)

Treatment

Serotonin antagonists (including chlorpromazine, lysergic acid diethylamide and alpha methyl dopa) are not uniformly successful in controlling the symptoms of the carcinoid syndrome. Since widespread metastases are usually present in these patients, with involvement of the liver, operative intervention can be considered only palliative. However, carcinoid tumors are usually of low-grade malignancy, and the presence of metastases should not carry as poor a prognosis as other metastatic gastrointestinal tumors do. Partial hepatectomy with removal of as much of the serotonin tissue as possible has produced temporary alleviation of symptoms.[14]

Since about half the patients with a carcinoid tumor present with intestinal obstruction, operative intervention is almost always undertaken for either diagnostic or therapeutic purposes.

It has been our experience, and that of others, that the release of serotonin during operations may be a serious occurrence, best prevented by minimal manipulation of the tumor, avoidance of hypotension and preoperative preparation with a serotonin antagonist such as chlorpromazine.[15]

Case Report

A 53-year-old seaman noted the onset of cramping lower abdominal and midepigastric pain, associated with anorexia, nausea and vomiting, on November 26, 1961. Because of the progression of these symptoms and a weight loss of 27 pounds, he was admitted to the hospital on December 4, 1961. Physical examination revealed an acutely-ill cachectic male. The abdomen was distended. Active, high-pitched peristaltic rushes were heard during the height of his abdominal cramps. Roentgenographic studies confirmed the clinical impression of a mechanical small bowel obstruction. A positive reaction for 5-hydroxyindoleacetic acid in the urine with the nitroso-naphthol reagent, and a moderately severe deficiency of fluid and electrolytes were also present. He had never undergone an abdominal operation nor did he ever note the occurrence of "flushing," diarrhea, or asthmatic attacks. During a previous period of hospitalization in May, 1960, a hiatus hernia and high free acid (82 units) were found on gastric analysis.

On 12/6/61, after the institution of vigorous fluid and electrolyte replacement therapy the patient was taken to the operating room. Multiple loops of intestine were found to be adherent to a tumor of the distal ileum which had extended out to the serosa, kinking the ileum at the site of obstruction. The liver also contained several nodules of tumor. The involved intestine and its mesentery were resected.

Pathological examination of the primary tumor and a nodule from the liver resulted in a diagnosis of carcinoid. Silver stains were positive for cystoplasmic granules.

Postoperatively the patient continued to exhibit a positive qualitative test for 5-hydroxyindoleacetic acid in the urine. However, on two separate occasions, quantitative urinary 5-hydroxyindoleacetic acid determinations failed to reveal a 5-hydroxyindoleacetic acid output which exceeded normal limits. A urine specimen was therefore sent to Dr. R. B. Davis of the University of Minnesota for analysis. A 5-hydroxyindoleacetic acid output of 6.7 mg/24 hours was obtained on a routine quantitative determination. By diluting the urine specimen (1:10) an output of 27.8 mg/24 hours was found.*

Six months postoperatively the patient was doing well except for a mild diarrhea. Upon injection of 10 μg. of epinephrine intravenously, the characteristic flush of the malignant carcinoid syndrome appeared. The flush occurred about 1.5 minutes after administration of the epinephrine and persisted for 15 seconds. Spontaneous flushing has not been noted by the patient.

Endotoxin and Anaphylactic Shock

When Humphrey and Jacques demonstrated the release of histamine and serotonin during antigen-antibody reactions in 1953, they re-

*Additional biochemical studies are currently being performed by Dr. Davis.

kindled an interest in the vasoactive substances which mediate the effects of immune phenomena.[16] Histamine had long been implicated in anaphylactic — and allergic — reactions. In 1957 it was suggested that serotonin and catecholamines were responsible for the vascular and hemodynamic changes produced by E. Coli endotoxin.[17] That same year, Weil and Spink commented on the similarity of endotoxin shock to anaphylactic shock and classified the response to gram-negative endotoxin as an "anaphylactoid reaction."[18] It was also in 1957 that the group at the National Institutes of Health quantitated the release of serotonin and histamine in rabbits during anaphylaxis.[19] Since 1959, there have been several studies which have also accurately documented the changes in peripheral circulating catecholamines, serotonin and histamine during endotoxin shock.[20-22] Figure 2 depicts the results of one of these studies. Following the administration of endotoxin, there is a rise in concentration of plasma epinephrine and norepinephrine. The fall in serum serotonin concentration is interpreted as a release of this vasoactive amine from its platelet store. Figure 3 attempts to summarize the current concepts of the pathogenesis of the shock syndrome seen following a lethal episode of gram-negative endotoxemia.

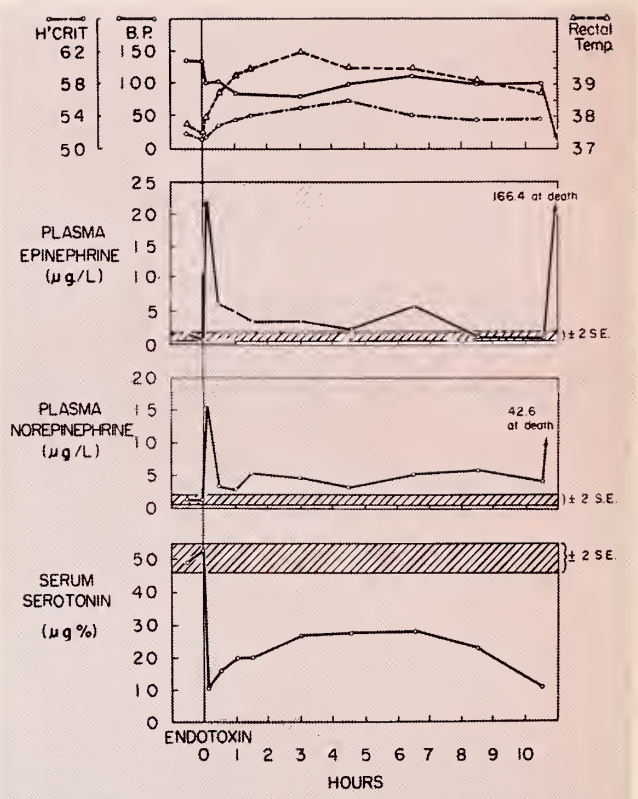


Figure 2. Changes in serum serotonin and plasma catecholamines in a dog following the intravenous administration of a lethal dose of endotoxin.

The clinical implications of these considerations are difficult to define. It is surely beneficial to understand the pathogenesis of bacteremic shock when confronted with this distressing problem. However, there is still no evidence to indicate that the clinical use of antiserotonin, or antihistaminic or adrenergic-blocking drugs are of value in treating endotoxin shock. Some of these drugs have been employed experimentally and appear to have some promise in diminishing the lethal effect of endotoxin administration.

Serotonin and Homograft Rejection

It has been fairly well established that the rejection of homografts is a form of immune reaction similar to a delayed hypersensitivity reaction. However, it is not known how this process results in the ultimate destruction of the homograft. The possibility of a local release of vasoactive substances which produce vascular changes leading to necrosis of the homograft stimulated a study of the changes in serum serotonin concentration during the application and rejection of skin homografts. One such

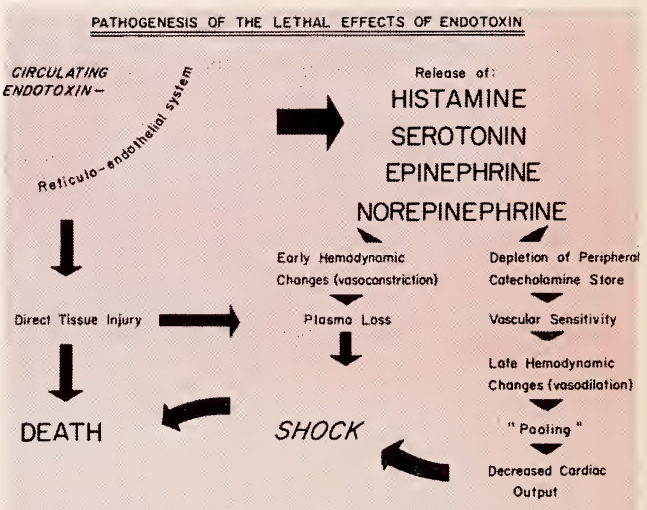


Figure 3. The proposed sequence of events leading to shock and death secondary to gram-negative endotoxemia.

experiment is shown in Figure 4. The justification for including this speculative material in a discussion of the clinical significance of serotonin is the exciting thought that some day the control of the rejection of homografts will permit the performance of an imposing array of reconstructive procedures.

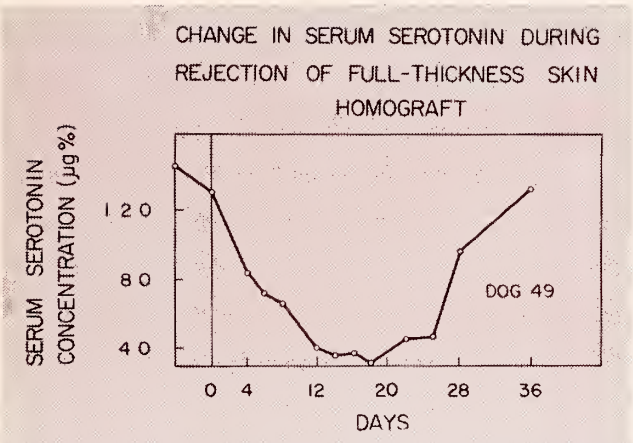


Figure 4. Changes in serum serotonin during rejection of a full-thickness skin homograft.

Other Conditions

In another communication,[10] we listed over 20 conditions in which serotonin was thought to play an important part because of changes which were observed in 5-hydroxyindoleacetic acid excretion. The list could be expanded, since reports continue to appear which suggest that serotonin may indeed be of some clinical significance in situations other than the malignant carcinoid syndrome and hypersensitivity reactions. Reserpine, for example, may owe part of its action to the release of serotonin. Similarly, cardiopulmonary bypass may be accompanied by a significant degree of serotonin release. Very little is known, however, as to the part serotonin plays in producing appreciable clinical changes. It is noteworthy that the commonly accepted method for the estimation of 5-hydroxyindoleacetic acid in urine must be modified if one is to utilize it in the evaluation of serotonin metabolism. Figure 5 shows how alterations in 5-hydroxyindoleacetic acid can be correlated with alterations in urine volume. If this relationship is not kept in mind one could easily be misled into drawing conclusions about changes in serotonin metabolism, when, in fact, the changes are primarily

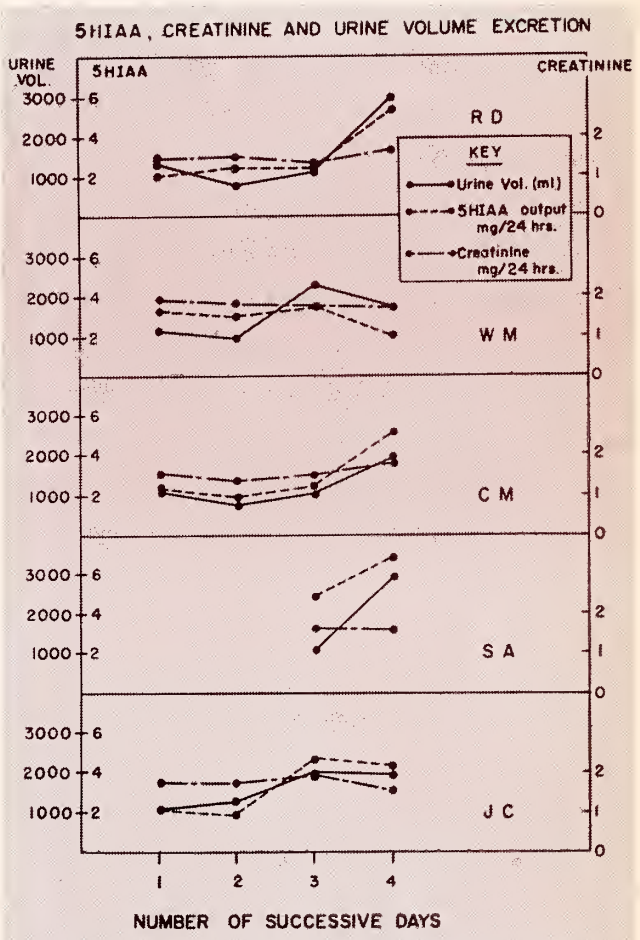


Figure 5. The daily urine volume in the five subjects studied was varied by regulating the fluid intake. It can be seen that the daily creatinine excretion was unaffected by the urine output. However, the daily 5-hydroxyindoleacetic acid output was directly proportional to the urine volume.

those of urine volume. Methodologic studies have revealed that this apparent relationship is spurious in that the recovery of 5-hydroxyindoleacetic acid in concentrated urine is poorer than from dilute urine. Thus, changes in urine, 5-hydroxylindoleacetic acid concentration, can be obtained which are due solely to the technic employed in estimating 5-hydroxyindoleacetic acid. A simple means of avoiding this drawback is to dilute all urine samples prior to analyzing them. Had this not been done on the patient's urine specimen as described earlier in the paper, he would not have been found to have an elevated 5-hydroxyindoleacetic acid excretion.

Summary

The role of serotonin in the diagnosis of the malignant carcinoid syndrome is discussed. An attempt is made to relate the symptoms of the syndrome to this compound. The possible actions of the serotonin in endotoxin and anaphylactic shock and the homograft reaction are outlined. The significance of alterations in 5-hydroxyindoleacetic acid excretion is also discussed.

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The end of the human race will be that it will eventually die of civilization.—Ralph Waldo Emerson

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Talk to a man about himself and he will listen for hours.—Benjamin Disraeli

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A little inflation is like a little pregnancy—it keeps on growing.—Leon Henderson

Postnasal drip and Sinusitis*

Symptoms can become "serious" afflictions. Postnasal "drip" is discussed here in its true relationship. A timely article for practicing physicians.

M. M. HIPSKIND, M.D.
Chicago, Illinois

A DISTRESSING feature in the life of a physician is the uncertainty which pertains to his science and art. The absence of an established and authorized doctrine governing *all* the actions and reactions of the body to the environment has, in effect, given the laity an invitation to indulge their eccentricities with curious fads, whims and fancies.

It has been the custom for the public to find pleasure in acquiring a "disease" that is benign, sensational, and conversational.

Postnasal "drip" and a "case of sinus" are in vogue today. Proetz[1] calls postnasal "drip" the "current American nightmare." Where the term "drip" arose he was unable to discover; it was his impression that "overnight the laity taught it to the doctor in hushed and often despondent tones." Only the term itself is new; the symptom is ancient. Our grandfathers called it "catarrh"; their grandfathers called it "rheum."

The Patient's Apprehension

Patients in all walks of life and of every level of intelligence have elevated this disagreeable symptom to a serious affliction. To them it is something resembling a leaking faucet in the back of the throat, constantly dropping "poison" in great quantity down into the stomach where it produces trouble, or into the lungs where it causes even more dire disease. If the patient suffers any

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* Presented at the Annual Meeting of the AMA, Chicago June 28, 1962

headache or facial pain, he is convinced that he has a bad "case of sinus."

What evidence is presented to support the notion that swallowing nasal secretions is harmful? What is the origin and purpose of these secretions? We will find the answers in a review of the applied physiology of the nose.

Physiologic Function

The nose is basically an air-conditioning mechanism. Inspired air, during the brief passage through the nose, is cleaned, moistened, and adjusted as to temperature. In less than a quarter of a second, the relative humidity of the inspired air, when it reaches the pharynx, is approximately 75%.

Air Conditioner

After passing through the nose, the cold outside air of winter or the warm air of our heated home is about 96.8° F., this uniform temperature being radiated from the rapidly-flowing blood which courses through the stroma of the subepithelial tissue over the turbinates and the septum. All dust, bacteria, and other particulate matter have been removed and the air is ready for the lungs.

Humidifier

The amount of water evaporated in the nose is about 1000 cc. each day, about 1-25 cc. per breath, varying, of course, with the humidity of the air. Hot summer air saturated with moisture requires comparatively little evaporation, whereas the dry air in a heated winter home requires considerable evaporation at the mucosal surface.

The water is supplied by the mucous blanket which lines all the air passages and this blanket is supplied by the mucous glands and goblet cells of the nasal mucosa. Both serous and mucous cells are present in the glands. A delicate adjustment to atmosphere conditions determines the amount of water and mucus produced by these cells.

Ciliary Function

The mucous blanket is in continuous motion, pushed along by the cilia, which beat in harmony, (Hilding tells us that the stroke of a cilium is not unlike the armstroke of a swimmer) and in such a way that the mucus is made to flow posteriorly from the nose and sinuses. In man the cilia of the respiratory tract stroke about 250 times a minute, the power of the ciliary movement being so great that it will move a load of viscid mucus several hundred times as deep as the cilia. The mucous blanket, which is renewed by the glands at least two or three times an hour, contains lysozyme, an enzyme which destroys most air-borne bacteria, so that practically none of the myriad of bacteria which enter the healthy nose ever reach the back part alive.

Buffering Action

Tweidie[3] found the pH of nasal secretion to vary between 6.8 and 7.4, and also in the majority of cases to have a nonculturable bacterial content. "Cases of acute rhinitis up to three days old vary in reaction from neutral to alkaline, but show no culturable content." "In cases of chronic rhinitis without other general symptoms, the reaction is usually neutral and the mucus more often sterile than not."

It is the opinion of many gastroenterologists that the mucus that is swallowed has a slight "buffer" action on the hydrochloric acid in the stomach. The percentage of hydrochloric acid in the gastric juice is considerably above that at which many organisms can live.

Abnormal States

What calls the patient's attention to the presence of a postnasal "drip"? Of course, sensational articles appearing in some of the widely-distributed popular periodicals have their influence, and radio and TV commercials constantly remind the public of halitosis, "strep throat", pyorrhea, and "sinus" headache in the process of selling their products: To "help stop bad breath, help stop decay, use XXX product to relieve nasal and sinus congestion.....!"

The patient becomes aware of postnasal drainage if the mucus is excessive, usually viscous, or fluid, irritating, odorous or obstructive. These abnormal states may be caused by:*

1. Excessive and prolonged nasal medication.
2. Central heating.
3. Tobacco smoking.
4. Alcohol.
5. Dust.
6. Fumes.

* Adapted from Proetz.

7. Bacteria.
8. Fungi.
9. Allergens (inhaled or ingested).
10. Thermal changes.
11. Local mechanical abnormalities.
12. Atrophy.
13. Foreign bodies.
14. Malignancies.
15. Nonmalignant lesions.
16. Metabolic upsets and eliminative disturbances.
17. Endocrine disturbances.
18. Emotional disturbances.

Case Reports

Case 1.

T. B., housewife, age 28. February, 1950, nasal blockage and postnasal "drip" constant winter and summer—five years. Examination: Thick crustlike yellow discharge in pharynx, septal spur into left middle meatus; right side of nose widely open with gaping middle meatus and hypertrophy of the right inferior turbinate. Blood, urine negative; sinus X-ray—fluid level right antrum. Mucopus washed from right antrum. Two weeks later, third lavage clear. Patient continued to complain of nasal obstruction and "need to clear" throat. Septectomy, outfracture of right middle turbinate, March, 1950. Patient free of symptoms, May, 1950.

Comment: Recovery followed control of infection by three antrum lavages and restoration of physiological airway.

Case 2.

L. M., real estate agent, age 48. September, 1953 complaining of nasal obstruction, "sinus" trouble, sneezing, and postnasal "drip" year around, but worse in the fall. Had three previous operations for "polyps." Examination: Thin, purulent postnasal drainage, absence of part of both middle turbinates, pale, wet mucosa with multiple small sessile polyps bathed in mucopus. Nasal smear: 2+ eosinophils; 2+ neutrophils. Mucopus washed from both maxillary sinuses, repeated five times with only slight improvement. Skin test strongly positive reaction to house dust, orris root, feathers, pyrethrum, kapok, cockleburr, giant and small ragweed. Patient made a favorable response to allergic management and desensitization.

Comment: Polypectomy and removal of a portion of the turbinates was unsuccessful.

Case 3.

J. B., salesman, age 29. In March, 1958, complained of congestion of the nose for one year. Unable to sleep; used nose drops several times each night and frequently through the day. Examination: Pharynx dry, inflamed; nasal mucosa red and glistening, swelling of the turbinates completely obstructing airway. Nasal smear: Epithelial debris, only a few eosinophils and neutrophils; sinus Xray negative. Blood count, uninalysis negative. Steam inhalation, stop nose drops, phenobarbital, gr. ¼, P. C. and H. S.; good nasal airway after six days.

Comment: The nasal mucosa is extremely sensitive to the vasocontrictors. After initial shrinkage vasodilation occurs, producing an even greater nasal obstruction.

Case 4.

M. S., male age 65; seen November, 1949 complaining of purulent nasal and postnasal discharge "all my life." Pain in the right cheek, worse in cold weather. Had bilateral Caldwell-Luc operation in 1927. Examination showed pale, wet nasal mucosa, right antrum mucosa seen through "window" in inferior meatus; nasal smear: 4+ eosinophilia. Positive reaction to inhalants and foods. Closure of the right nostril with plain cotton gave dramatic relief of pain in the right cheek. The antrum window exposed the right maxillary sinus directly to the drying and irritating effect of the inspired air.

Comment: There was no improvement after "radical sinus" operation, and none could be expected so long as nothing was done about his allergy. In allergic cases, a diminution of the swelling occurs with elimination of the allergens to which the patient is sensitive. It has been demonstrated that atrophy of the cilia occurs when jets of air provoke drying.

Summary

The nose is an efficient mechanism able to prepare the air for the lungs. Temperature, humidification, and bactericidal control are evident. The production of innocuous mucus is a defensive phenomenon and is to be regarded as evidence of health, not of disease.

In my experience, I have never seen a case of malignancy of the nose, sinus, or pharynx in a patient with an adequate mucous blanket. On the other hand, it has been my experience that malignancies are not uncommon in those cases showing excessive dryness of these structures. The popular use of the radium applicator 20 years ago has produced a number of dry and telangiectatic areas in the nasopharynx.

Therapeutic measures must be chosen on the basis of sound knowledge of anatomy and physiology.

Postnasal "drip" is not "something everyone has and must live with." The use of nose drops is rarely beneficial; the damage done by them is manifest. The agent causing the nasal obstruction and discharge must be identified and controlled.

The sacrifice of functioning tissue is to be avoided. Radical surgery of the sinuses should be reserved for those cases in which the procedure is necessary to assume a favorable result. The radical procedures popular before the 1920's

have disappeared in the light of recent knowledge. Only septectomy and sinus lavage remain as sound surgical measures.

A thorough discussion with the patient of the purpose of nasal mucus production will be rewarding both to the patient and to the rhinologist.

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DUMPING SYNDROME

Johnson et al.* believe that on theoretical grounds Serotonin is likely the humoral agent involved in "Dumping," since the early manifestations of Dumping are quite identical with the symptoms attributable to Serotonin, and this substance is present in great quantities in the enterochromaffin cells of the duodenum and jejunum. Furthermore, the amount of Serotonin released can be increased by intraluminal pressure, intestinal hypermotility, intraluminal acid, and hypertonic sugar solutions; situations found in "Dumping."

Experimental Dumping was studied in dogs by instillation of 200 cc of 50% glucose directly into an upper jejunal fistula. Plethysmographic monitoring of peripheral vascular responses then gave an index of measurement of the effect of various antiserotonin drugs. They found cryoheptadine (periactin) to be a potent serotonin antagonist without any appreciable side effects.

Sixteen post-gastrectomy patients with Dumping Syndrome were studied in a similar fashion by hyperosmolar stimulus, plethysmographic studies, and finally chronic treatment up to six months. The authors found that from four to six milligrams of cryoheptadine taken two hours before meals markedly diminished the dumping symptoms and manifestations.

This manner of treatment did not relieve the sensation of fullness and nausea which they attribute to diminished gastric reservoir, nor did it relieve late hypoglycemia with its associated nervousness, sweating, and hunger.

The major objective argument in favor of the thesis that Serotonin is a humeral agent involved in Dumping was the plethysmographic measurement after hyperosmolar stimulus. The serotonin antagonist drug was found to produce a striking decrease in the peripheral vascular response.

Surgical treatment of Dumping Syndrome by revision of the previous surgery such as development of a larger pouch and various other mechanical changes have been rather disappointing. A small percentage of gastrectomy patients are disabled by dumping problems. No doubt most of us will hopefully await substantiation of these findings by other investigators and additional methods of evaluation and assessments. A double-blind study in this instance would seem quite well indicated, since these patients are frequently highly susceptible to suggestion, and the antiserotonin drugs have at least some sedative effect.

J. H. Strickler, M.D.

*Johnson, L. P., Sloop, R. D., Jesseth, J. E. Harkins, H. R.: "Serotonin Antagonist in Experimental and Clinical Dumping." Ann Surg 156:537, Oct 62.

Juvenile Thyrotoxicosis

Hyperthyroidism may be a significant organic factor in emotionally disturbed children The author presents four interesting patients who responded well to both medical and surgical therapy.

GEORGE M. B. HAWLEY, JR., M.D.
Red Wing, Minnesota

ALTHOUGH A number of cases [2, 3, 4, 5, 11, 12] of thyrotoxicosis have been reported in children, it is felt that the entity is sufficiently uncommon to warrant this consideration of four cases, in three of which there was a dramatic response to therapy resulting in a sweeping change of behavior patterns of lasting duration. Childhood thyrotoxicosis does not significantly differ from the disease seen in adults, although symptoms associated with emotional and behavior problems may mask other manifestations of the hyperthyroid state. Except for diabetes mellitus there does not appear to be more than chance association with other diseases. Considerable controversy exists as to whether thyrotoxic children are best treated with antithyroid drugs or by subtotal thyroidectomy. Considerations affecting the choice of therapy will be discussed.

Report of Cases

Case 1:

R. S. This 17-year-old white male of average intelligence was admitted to the State Training School following a car theft. Three months previously he had been discharged from the Marines because of enuresis and nervousness. Emotional lability, general nervousness, and impulsive behavior were noted at the time of admission to the institution. There had been a recent subjective weight loss of fifteen pounds despite an excellent appetite. On physical examination thyroid enlargement, general nervousness, and signs of cardiovascular hyperactivity were noted. The basal metabolic rate and sleeping pulses were elevated. Three weeks after admission a subtotal thyroidectomy was performed and his subsequent rapid symptomatic improvement included disappearance of nail biting and of enuresis.

Case 2:

K. R. This 16-year-old American Indian with a mental classification of dull-normal was admitted to the State Training School after repeated convictions for breaking and entering, and for theft. There was a positive family history of active tuberculosis in one parent and in two siblings. Signs of thyrotoxicosis were not noted at the time of his admission. During the following four months he lost six pounds in weight, became increasingly nervous, and adjusted poorly to the institutional environment. When re-examined a fine tremor, warm moist palms, and an enlarged soft thyroid with a systolic bruit were noted. The basal metabolic rate and

sleeping pulses were elevated. Following surgery patient adjusted well at the school and became asymptomatic. At the expiration of his parole he entered the Air Force and completed his high school education at the Armed Forces Institute.

Case 3:

T. O'B. This 16-year-old white male of average intelligence came from a broken home and had been shifted from relative to relative with no security or affection. He was committed to the State Training School for incorrigibility. Signs of thyroid hyperactivity were not noted at the time of admission. Six months later the patient was re-examined because of increasing exertional weakness, increasing behavior difficulties, and a sixteen pound weight loss in spite of excellent appetite. A mild exophthalmos, symmetrical enlargement of the thyroid gland, digital tremor, and signs of cardiovascular hyperactivity were noted. Following surgery the patient became asymptomatic and subsequently performed well during an enlistment in the Army.

Each of these three boys had a background of repeated violations of the law over a period of at least two years. Their parental, home, and general social environments were similar and undesirable. Symptoms of emotional lability and irritability, manifest nervousness, increased appetite, and progressive weight loss were present in all three. In each case confirmation of the diagnosis was simple once it had been considered. Subtotal thyroidectomy was elected as the treatment of choice in each instance. Preoperative preparation was accomplished with propylthiouracil until signs of thyroid overactivity began to subside. Iodine was added to the regimen for a period of ten days preoperatively. The postoperative courses were uneventful and the personality changes in each of these patients were pronounced. From the time of discharge from the hospital each of these boys adjusted well in the training school environment, during parole, and during the four-year period subsequently. They have not been heard from since 1958, but recent inquiries have revealed that none has subsequently been involved with law enforcement authorities in this state.

Case 4:

M. S. An eight-year-old white girl complained of frontal headaches of four months duration. General nervousness with nocturnal accentuation and inability to gain weight had been observed during this period. She was described as being "unable to sit still at home or at school." Prominence of her left eye had been noted by her family. Her mother has psychogenic intrinsic bronchial asthma. On physical examination, enlargement of the thyroid gland, left exophthalmos, general nervousness, and cardiovascular hyperactivity were observed. The basal metabolic rate, protein bound iodine, and radio active iodine uptake values were abnormally elevated. She was placed on antithyroid medication and a prompt clinical response followed. There was a definite personality change and a pronounced improvement in adjustment and performance at school. Enlargement of the thyroid gland subsided. Eight months after beginning antithyroid medication symptoms of hypothyroidism appeared. At that time her protein bound iodine was 2.1 mcg.% and the blood cholesterol 305 mgm.%. Her dosage of propylthiouracil was reduced and desiccated thyroid added to her regimen. Her laboratory values returned to normal levels, and she has since maintained a clinical euthyroid state. There has been slight improvement of the exophthalmos. During seventeen months of treatment she has gained 4.5 inches in height and 19.5 lbs. in weight. Withdrawal of propylthiouracil will be attempted at the end of two years of treatment.

Discussion

The incidence of this condition in children under fifteen years of age is approximately one percent of all the cases of diffuse thyrotoxicosis.[1] Three of these patients were older than fifteen at the time of diagnosis, but their symptoms had begun at an age which would include them in this group. Toxic adenoma in childhood is unknown. However, both nontoxic adenoma and carcinoma of the thyroid, unaccompanied by thyrotoxicosis, may occur in childhood. [1] Reports on the female to male ratio vary from four to one to twenty-four to one. [1, 2, 3] The manifestations of the thyrotoxic state in children are the classic ones and do not significantly differ from those found in adults. Exophthalmos tends to be less severe. The most frequent symptoms are those associated with general nervousness and emotional instability. An enlarged thyroid occurs in over 80% of cases. [1, 6] Kennedy [4, 5] has emphasized the importance of dealing with the psychologic factors in the successful approach to the treatment of juvenile hyperthyroidism.

Surgical and medical treatments are equally effective in the correction of the manifestations of childhood thyrotoxicosis. [7] Because of possible genetic and carcinogenic consequences radioactive iodine and irradiation are not used in the treatment of thyroid disorders in children. [7, 8, 9] Surgical treatment has the advantage of financial economy, and should be recommended for those patients who are unco-operative or who cannot be followed closely. Surgical treatment is also indicated in patients sensitive to antithyroid drugs and for those in whom there has been an unsatisfactory response to previous medical therapy. Medical treatment offers the advantage of avoiding an endocrine ablation in a child. The incidence of relapse after surgery is inversely dependent upon the amount of thy-

roid tissue removed. [10] With the more radical operations the risk of parathyroid damage and permanent hypothyroidism becomes greater. [3] Laryngeal nerve damage and cosmetic consequences in girls are other surgical considerations. Where medical treatment is employed, the combined use of thyroid and antithyroid drugs is recommended for a period of at least two years. Reduction in the size of the goiter during treatment is the best prognostic sign.[3]

Summary

Thyrotoxicosis in children is an uncommon disorder which is easily recognized if suspected. The primary manifestations are those of nervous stimulation, and the diagnosis should be considered in those children with hyperkinetic emotional disturbances. The choice between medical and surgical treatment must be evaluated for each patient.

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Senior Citizens and the Peace Corps

Opportunities provided by the Peace Corps are available for senior citizens in the field of medicine. Physicians who have reached the retirement age, but who may desire to continue some degree of work in the field of their interest, have an opportunity to serve in the Peace Corps throughout many countries of the world. Husband and wife may serve together.

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Application can be made to Peace Corps Senior Manpower Recruitment, Washington 25, D. C.

Think twice before you speak—and then say it to yourself.—Elbert Hubbard

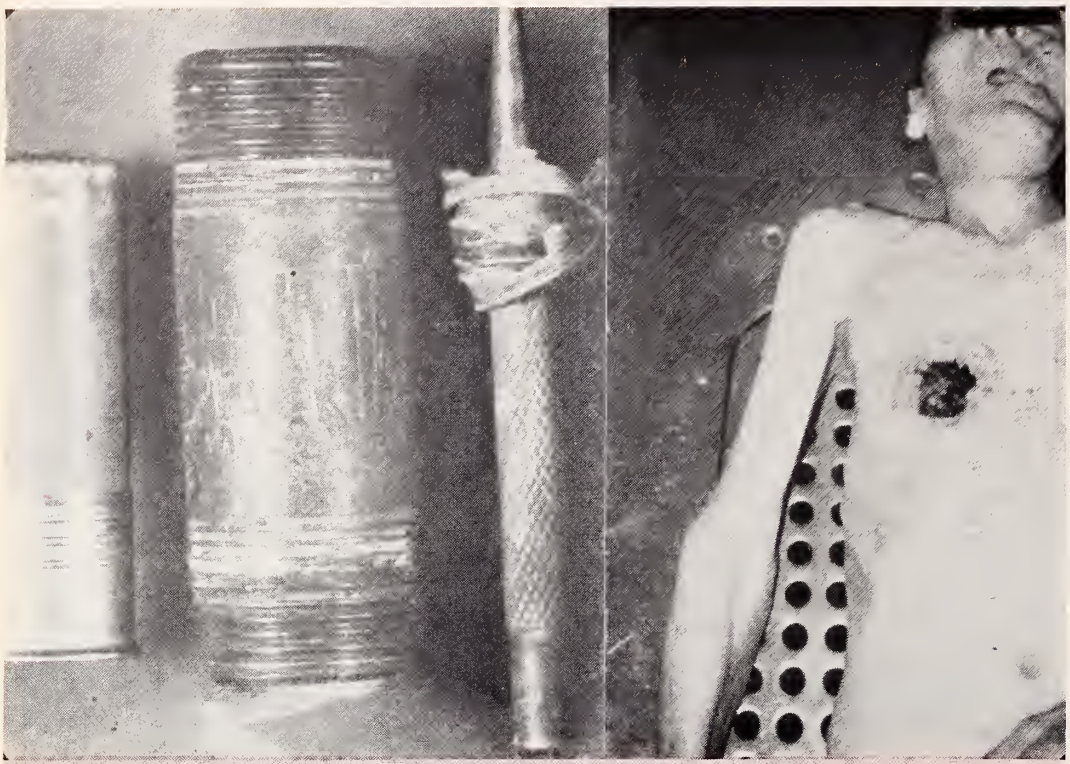


Illustration #1—See text under "Method of Suicide".

Suicides a Statistical

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Minneapolis, Minnesota

With nearly 21,000 suicides per year in the United States,[1] the majority occurring during the productive years, the study of this problem deserves attention. It is hoped that compilation of the statistical data on the cases arising in the metropolitan area of Minneapolis will provide material of value, not only to the investigating officials charged with handling the problems connected with the successful suicides, but also to the practicing physicians and psychiatrists who study the causes and the means of prevention of these untimely deaths.

The material for this report was obtained from the records of the Hennepin County coroner and the personal observations of the author, whose staff performed a number of the autopsies on both the suicide and the murder victims.

General Data

There were 750 suicides in Hennepin County in the ten-year period of 1952-1961, of which

*Pathologist and Director of the Laboratories, Minneapolis General Hospital

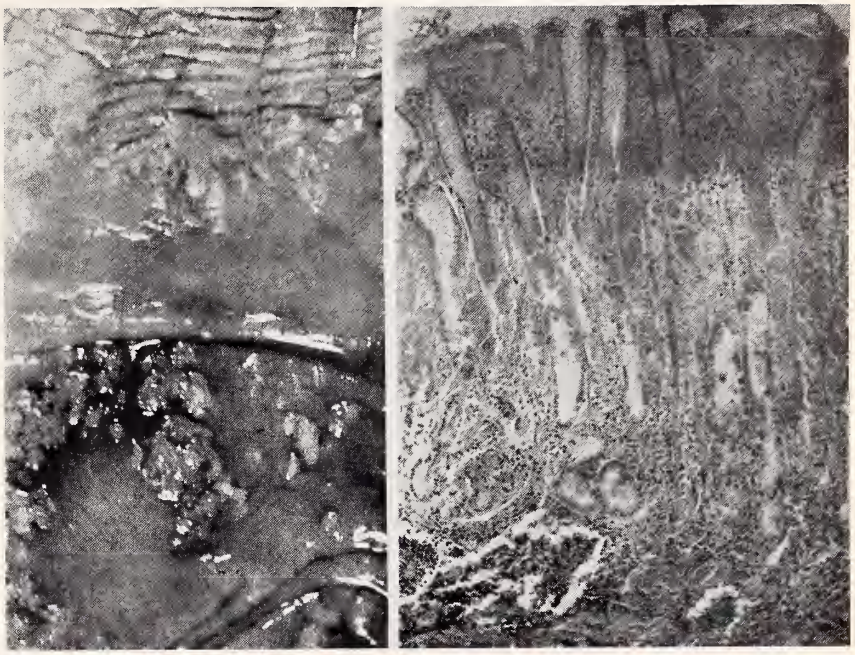


Illustration #2—Phenol poisoning. Photograph of the gross specimen (3.5x) shows islands of preserved cells in a hyperemic generally denuded mucosa. The photomicrograph (300x) reveals good preservation of the superficial cells in contact with the phenol, while the deeper layers of the mucosa show extensive post-mortem degeneration.

and Pathological Report

588 were men and 162 (21.6%) women. The age range was from 11 to 90 years, with the age distribution for both sexes shown in Graph 1.

Age

While the greatest number of suicides occurred in the 40 to 60 age range, there was actually an increasing rate of suicide with increasing age as shown in Table I.

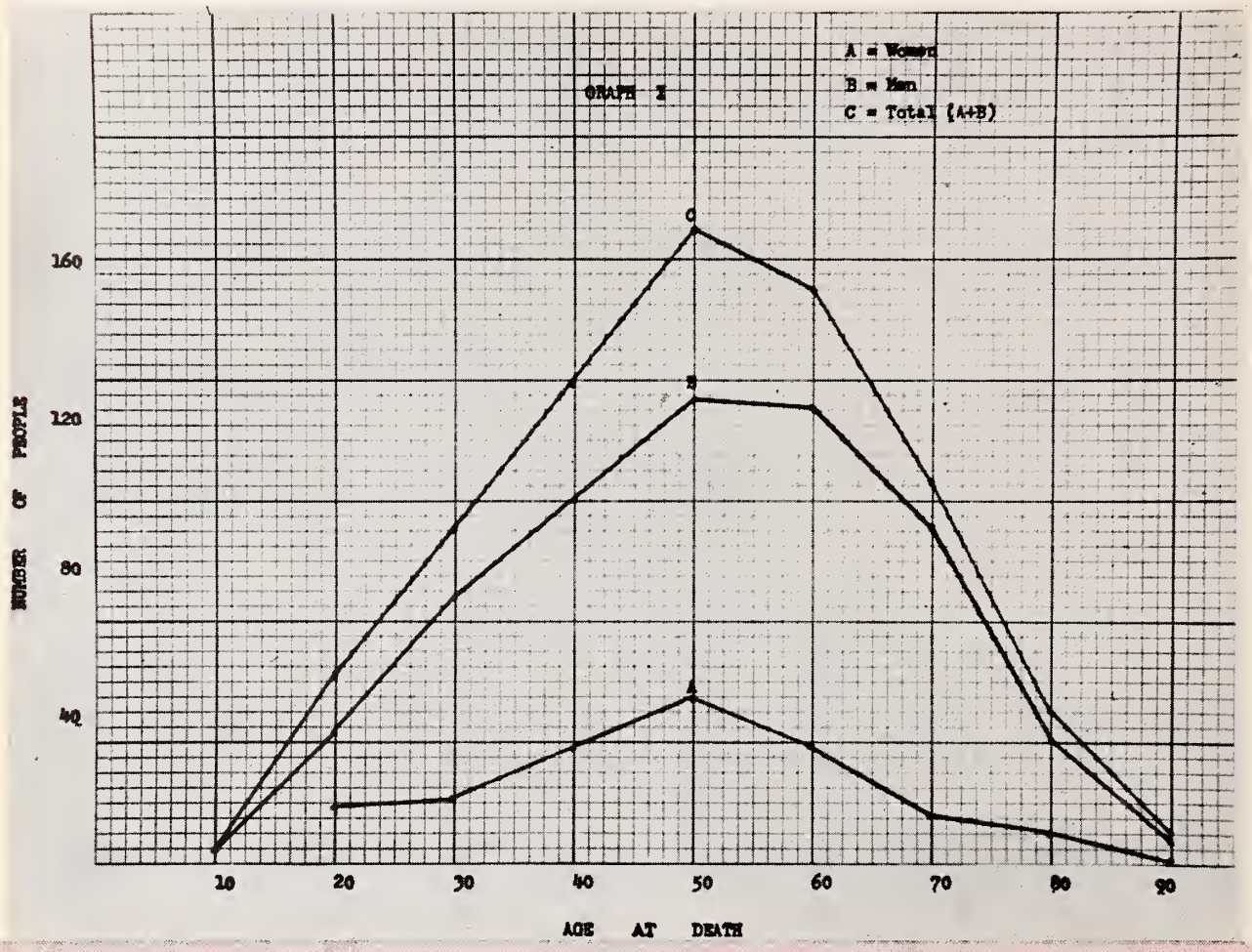
However, youth is not a period of immunity, and Minnesota statistics reveal that for the age

TABLE I

SUICIDES — HENNEPIN COUNTY 1952-1961

Age group	Number of cases	Rate per 100,000 population*
Total group	750	9.8
35-44	127	12.6
45-54	168	19.3
55-64	152	20.9
65-74	102	21.6
75-84	44	23.2
85 and over	10	25.1

*Based on mean population determined from 1950 and 1960 census figures.



Graph I

group of 15-19, suicide ranks as the third leading cause of death, exceeded only by accidental deaths and cancer.[2] Nor is the situation primarily urban, since the suicide rate for the state, exclusive of the metropolitan areas of Minneapolis, St. Paul, and Duluth, was 9.7 per 100,000 population in 1960.

Time

While some investigators have found suicide to be more prevalent in the early part of the day, week, month, or year, the statistics for Hennepin County do not support this. Distribution throughout the year was essentially the same for each of the 12 months, with the greatest number, by a slight margin, occurring in July. Three fifths of the suicides occurred in the afternoon, with the peak incidence between 4:00 and 8:00 p.m.

Race

The racial distribution of suicides is shown in Table II.

TABLE II

Race	Suicides		Murder Victims	
	Number	Per Cent	Number	Per Cent
White	739	98.6	75	73.6
Negro	8	1.0	21	20.6
Indian	1	0.13	4	3.9
Mexican			2	1.9
Chinese	1	0.13		
Japanese	1	0.13		

As the Negro population in Hennepin County is 1.43%, the incidence of suicide among Negroes is lower than in the white population. The Oriental population is so low and the population of Mexicans and Indians so fluctuant, that the statistics for these groups have no significance.

Method of Suicide

The means employed for self-destruction for both sexes are shown in Table III.

TABLE III

METHODS UTILIZED IN 750 SUICIDES — HENNEPIN COUNTY

METHOD	TOTAL NUMBER OF PEOPLE	% OF TOTAL GROUP	NUMBER OF WOMEN	% OF INDIVIDUAL GROUP
Gunshot	242	32.3	25	10
Hanging	159	21.2	37	23
Carbon monoxide	125	16.6	10	8
Drowning	73	9.7	20	27
Barbiturates	70	9.3	44	63
Jumping	28	3.7	7	25
Other drugs	26	3.4	9	35
Cutting & stabbing	17	2.3	4	24
Miscellaneous	10	1.3	6	60

It will be noted that in contrast to the means used by men, barbiturates were most commonly employed by women, followed by hanging, gunshot, and drowning in that order. The predominant use of drugs, which produce death slowly and thus give opportunities for rescue, undoubtedly accounts for the low percentage of successful female suicides. This is in contrast to attempted suicide where women outnumber men over 2:1.[3]

Guns

Of the 242 people using guns, 71 used rifles, 101 revolvers or pistols, and 70 shotguns; 169 wounds were in the head or neck, 65 in the chest, and only 8 in the abdomen. More than one shot was fired in seven cases and more than two in only one case. Occasionally unusual firearms were developed such as the weapon shown in illustration I; in this case the pipe was clamped in a vice, loaded with a .12 gauge shotgun shell, and then detonated with an awl and hammer by the victim as he stood in front of the pipe.

Hanging

In the 159 deaths from hanging, many were accomplished by fastening a noose to some relatively low object such as a doorknob or coat hook, with the victim sagging down until unconsciousness and death ensued. None of the group hanged themselves in such a manner as to produce a broken neck or fractured larynx.

Carbon Monoxide

In contrast to earlier studies,[4] the deaths from carbon monoxide in this series occurred exclusively by using an automobile, either running the car in a closed garage or directing the exhaust fumes into the automobile with accessories such as garden hose or tubing from a vacuum cleaner.

Drowning

Among the 73 victims listed as drowning, there could be some dispute as to the means of suicide, since some of these individuals jumped from high places; but death appeared to result from being in the water rather than from traumatic injuries sustained by the fall. In two cases, the victims drowned themselves in bath tubs.

Drugs

While barbiturates are by far the most common drug employed for self-destruction, a number of other chemicals have been used with suicidal intent. These include tranquilizers, Drano, ether, formaldehyde, colchicine, methyl salicylate, Doridan, nicotine, morphine, carbon tetrachloride, phenol, mercury bichloride, cyanide, Energene, arsenic, oxalic acid, and cyclopropane. Some of these have produced striking pathologic changes. The combined corrosive and fixative actions of phenol and mercury bichloride on the stomach are shown in illustrations 2 and 3.

Cutting Wounds

In 17 patients listed as dead from cutting and stabbing, there were some who had made superficial wounds prior to the deep wounds that produced death. These were commonly in the same location and parallel to the fatal slash, but in some they occurred on one part of the body while the final cut was inflicted elsewhere. Nine wounds occured in the neck, 10 on the wrist, and only one in the abdomen.

Miscellaneous

Among the miscellaneous methods employed were burning (2 cases), electrocution (2 cases), suffocation with a plastic bag (2 cases), jumping in front of a train (1 case), and crashing an automobile (1 case).

Study of Possible Determinants

In attempting to delineate possible contributory causes for the suicides, the marital status was determined in the 556 cases where it was available.

Marital Status

This indicated that 340 (61%) were married, 105 single, 68 widowed, and 43 divorced. These gross statistics are deceptive, since study of the individual cases revealed than many of the people listed as married were really separated from their spouses or in marital difficulty, with separation or divorce pending. Even so, using the figures as given reveals the rate for married people to be only 8.8 per 100,000 compared to 14.7 per 100,000 for widowed individuals and 26 per 100,000 for the divorced. Thus loneliness may be a contributory factor.

Psychiatric Status

While extensive psychiatric material is not available, certain information can be obtained from the coroners' reports. Ten per cent of the series had threatened suicide and 9% had attempted suicide at least once before the final act; 12% had been institutionalized for mental illness in the past, and 16% were under psychiatric care at the time of death. A great majority were felt to be in severe depression at the time of suicide. Only a few were considered frankly psychotic, such as the two elderly females who set their clothes on fire and burned themselves to death. In a few instances, apparently no mental aberrations were noted by family or friends prior to the suicide. Whether these represented cases of poor observation by associates or truly sudden decisions for self-destruction in previously essentially normal individuals is impossible to determine.

Suicide Note

In only 16% was a suicide note found by investigating officials. Probably a higher percentage existed, but they were concealed or destroyed by the family before the investigating official arrived, in an attempt to conceal the fact of suicide or because of guilt feelings based on the content of the notes. Such notes form the only objective material for study by the coroner as to the etiology of suicide, and superficially would indicate one or more of three principal factors in most cases. In the order of most common occurrence these are: (1) feelings of loneliness and isolation commonly complicated by feelings of unworthiness, (2) physical illness causing great pain or having a known fatal outcome, (3) revenge, in which the death is meant to mentally torture some survivor.

Occupation

The occupations of the victims are listed in Table IV.

TABLE IV

WORK STATUS	Suicides	Murder Victims
Laborers	151	24
Housewives	80	10
Clerks	46	4
Managers	42	1
Building trades workers (carpenters, plumbers, etc.)	38	4
Salesmen	34	1
Mechanics and machinists	22	3
Students	22	4
Farmers	17	
Professional workers	13	1
Engineers	12	
Reporters	8	
Artists and musicians	7	2
Bartenders	5	2
Auditors	5	2
Technicians	4	1
Policemen	4	2
Bakers	4	1
Miscellaneous	21	6

This gives only a very gross estimate of educational status or intelligence. It is recognized that college graduates may be engaged in manual trades while managers may be self-educated. The intellectual or educational level of housewives cannot even be surmised. Nevertheless, it does not seem to the author that this chart supports the general contention of an increasing suicide rate with increasing educational status.

Alcoholism

Alcohol does not appear to be a significant factor in suicides. Study of the cases reveals that

only a very small percentage were chronic alcoholics. Post-mortem blood alcohols were obtained in 433 of the series with the results given in Table V, which shows that only 12% could be considered "under the influence" at the time of death.

Statistics on Murder

In an attempt to elucidate any distinguishing characteristics between suicide and murder, the latter cases for the years 1952 through 1961 in Hennepin County were compiled.

There were 102 recognized victims of murder, of which 61 were men and 41 women. The age range for these victims is given in Graph II, the race in Table II and the work status in Table IV.

Of the murders committed by shooting, 47 were done with a rifle or revolver and five with a shotgun. The gunshot victims sustained 24 wounds in the head, 25 in the chest, and 13 in the abdomen. Post-mortem blood alcohols were performed on 64 victims with the results shown in Table V.

TABLE V

POST-MORTEM BLOOD ALCOHOL

	Suicide		Murder Victims	
Alcohol Content	Number	Per cent	Number	Per cent
Negative	290	67.1	34	54.2
0.05-0.09%	44	10.1	5	7.8
0.10-0.15%	47	10.8	10	15.6
over 0.15%	52	12.0	15	23.4

The methods used to commit murder are given in Table VI.

TABLE VI

MURDER VICTIMS — 1952-1961

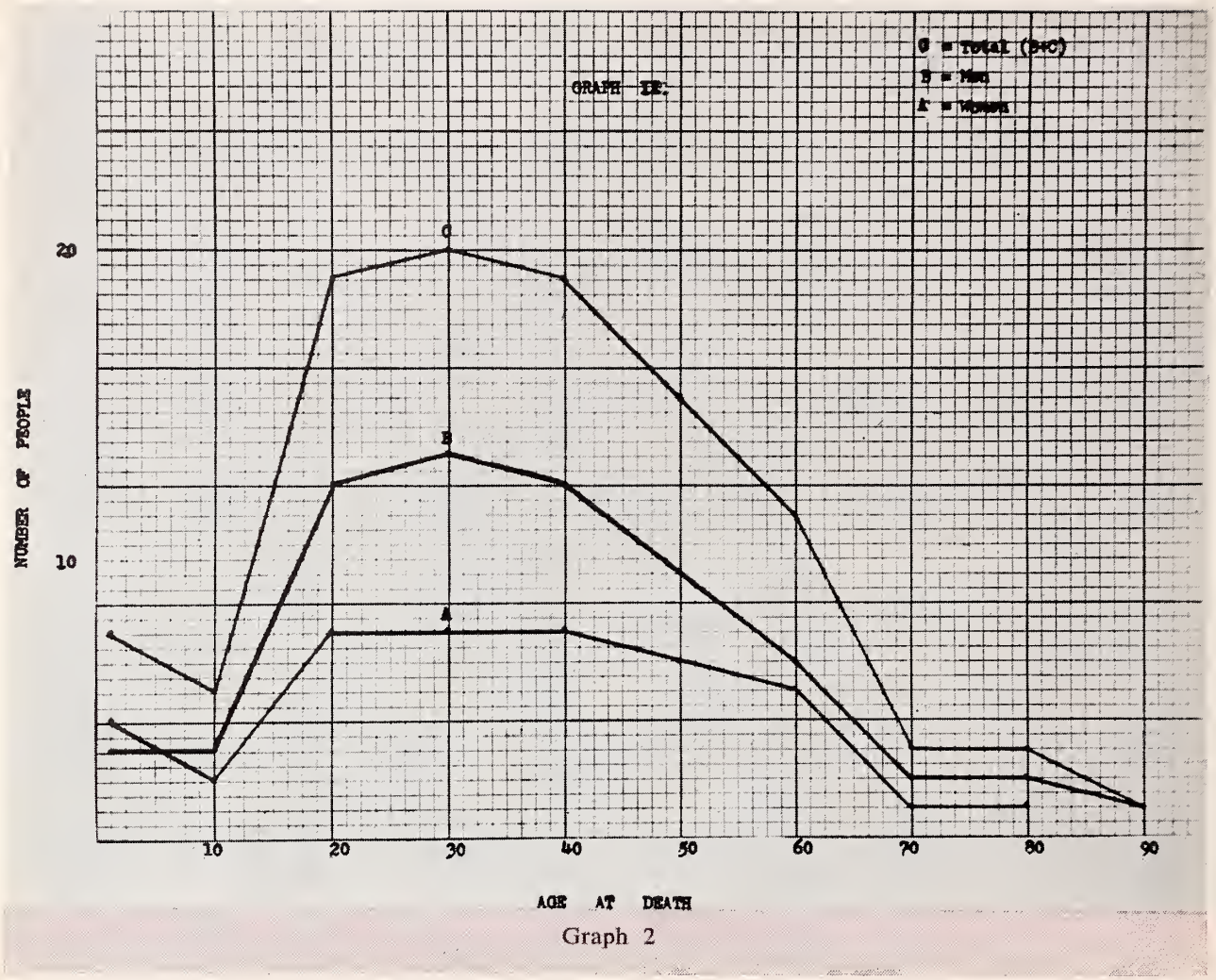
Method	Number
Gunshot	52 (1 infant)
Blunt Trauma (clubbing & slugging)	30 (2 infants)
Stabbing	14
Manual strangulation	2
Garroting	2 (1 infant)
Drowning	2 (both infants)

Comment

The suicides in this series are similar to most that have been reported in regard to age, sex, and race distribution[1, 2, 4, 5] Methods used to commit suicide vary considerably in published statistics, and this series corresponds most closely to the figures given for the United States in 1926-1930. The most interesting changes are in the method of obtaining carbon monoxide and in the poisons employed. In earlier years carbon monoxide poisoning resulted principally from use of gas stoves, while in this series it was derived exclusively from automobiles. Lysol, mercury bichloride, and cyanide were the commonly employed



Illustration #3—Mercury bichloride poisoning. Photograph of the gross specimen reveals marked fixation characterized by a leathery gray-white appearance of the mucosa. The photomicrograph (300x) shows good preservation of the superficial mucosal cells, while the deeper cells show extensive post-mortem degeneration.



Graph 2

poisons in the twenties, while today barbiturates overshadow all others combined by a wide margin. As in previous studies, this series reveals that the great majority of suicides occurred during severe depression and that any threat of suicide must be taken seriously by attending physicians.

Since this article is written by a pathologist, the points the author wishes to stress are pertinent primarily to physicians or law enforcement officials charged with the responsibility of investigating and classifying deaths from unnatural causes. In the majority of cases, little difficulty is encountered in determining whether death is the result of accident, suicide, or murder.

When a question exists between suicide and accident, death must be considered accidental or undetermined. In view of the social and religious stigmata associated with suicide, this is humane, although it undoubtedly produces some legal injustices. Suicide connotes a conscious, willful act of self-destruction, and who is to say that the sober automobile driver crashing into an abutment without apparent cause did so purposefully rather than because he fell asleep. Only the presence of a suicide note will enable a coroner to classify such a case as self-destruction.

Certain less obvious problems should be stressed because of the frequency of misinterpretation. One of these is the death by hanging in young men. Ancillary evidence may establish the fact of suicide in many; but there are others, identified by similar features, that represent accidents. [6, 7] The victims are partially to completely unclothed and commonly situated so that they can view themselves in a mirror. Frequently, their hands and/or feet appear bound, and they may be wearing or have at hand items of feminine apparel. The noose in these cases is used to heighten erotic stimulation with no intention of producing death, and only the inadvertent protraction of cervical constriction to unconsciousness produces

the undesired demise. A second problem in the accident-suicide category concerns the habitual user of barbiturates, who, without previous evidence of suicidal tendencies, is found dead from an overdose of the sedative. Undoubtedly some of these represent cases of automatism as described by Jansson.[8] The victims, having failed to get the desired sleep from their usual dose, but mentally confused by the drug, continue to take pills with no thought of self-destruction.

Of greater legal import may be the separation of murder and suicide. While each case must be considered individually, certain clues are available to aid in deciding equivocal cases. Thus the statistics given for suicide and murder show that death by violent means, other than blunt trauma, in a white individual has a 7.5:1 chance of being suicide, considering all ages, and that the ratio increases with advancing age past forty, but is reversed below the age of 15. In contrast, violent death in a Negro at any age has 2½ times the possibility of being murder compared to suicide, other factors being equal. These are consistent with similar factors determined by Zamcheck and Geisler.[5]

Considering individual means of destruction, it will be noted that while gunshot wounds accounted for five times as many suicides as murders, multiple gunshot wounds, particularly when they involve the abdomen, reverse the ratio in favor of murder. Combining such factors will show that death in a 20-year-old Negro shot twice in the abdomen will have a 50 to 1 chance of being murder. This should alert officials to be exhaustive in their investigations before classifying such a case as suicide, no matter how clear-cut the circumstances may seem at first.

Suicidal hanging rarely produces a broken neck (none in this series). The author is personally familiar with two cases of murder disguised as hanging suicides. In one, the clue to homicide was the presence of fractured cervical vertebrae, while in the second a fractured larynx helped to establish manual strangulation as the true cause of death.

Suicidal deaths from cutting are commonly accompanied by superficial wounds parallel to the death-producing slash. These "hesitation marks," however, may occur on the wrists when the final cut is in the neck, or vice versa. Cuts in the abdomen or upper arms are unusual in self-destruction but not uncommon in victims of razor or knife fights.

Suicidal stabbings are uncommon in the abdomen and almost never performed through clothing. The person preparing to stab himself will bare the area in which the instrument is to be plunged. This is in contrast to homicidal stabbings that are usually done through the victim's apparel and commonly occur in the abdomen.

Finally, in Minnesota, death by poisoning is strongly indicative of suicide or accident. No recognized cases of homicidal poisoning have occurred in Hennepin County in over 10 years.

Summary

A statistical analysis of suicides in Hennepin County for the 10-year period of 1952 through 1961 reveals the rate for this locality to be 9.8 per 100,000 per year. There is an increasing rate with advancing age to a peak of 25.1 per 100,000 in people 85 and over. The ratio of males to females is 4:1. The incidence of suicides in Negroes is lower than for the white population.

This series gave no evidence that suicides occur early in the day or year. Alcohol was not a significant factor. The methods used for self-destruction in order of frequency were gunshot, hanging, carbon monoxide, drowning, barbiturates, jumping from high places, drugs other than barbiturates, cutting, and miscellaneous. Few suicides occurred among frankly psychotic individuals; but the majority were depressed, and many had threatened or attempted suicide before.

Study of murder victims for the same area and period demonstrates differences in age, race, and method. These are discussed to aid officials investigating questionable cases.

Grateful acknowledgement is made to Mr. Emerson Storey of the Minnesota Bureau of Vital Statistics and to the staff at the Hennepin County Morgue for their invaluable aid in obtaining some of the statistical material for this paper.

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1963 Prize Essay Contest

The Council on Undergraduate Medical Education of the American College of Chest Physicians offers three cash awards to be given annually for the best contribution prepared by undergraduate medical students on any phase of the diagnosis and/or treatment of chest diseases (heart or lungs).

Those wishing to enter the contest must observe the following conditions:

1) Complete the official application form in duplicate, have original copy signed by the dean of the medical school, and return original copy at once to College offices.
2) Five copies of the manuscript, typewritten in English (double spaced) should be submitted to the College offices in Chicago not later than April 1, 1963.
3) The only means of identification of the author shall be a motto or other device on the title page. A sealed envelope bearing the same motto on the outside and enclosing the name and address of the author must accompany the essay.

It is suggested that applicants study the format of the College journal, *Diseases of the Chest,* to guide them in the preparation of the essay.

The official application form, sample copies of the journal, and additional information may be secured by writing Mr. Murray Kornfeld, Executive Director, American College of Chest Physicians, 112 E. Chestnut St., Chicago 11, Illinois,

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Minnesota Medicine Award

Every year a bronze plaque is given to the winner of the best scientific manuscript illustrated in Minnesota Medicine for the preceding year. The coveted award plaque and honorable mention certificates will be announced at the annual May meeting.

Life can only be understood backwards, but it must be lived forwards.—Soren Kierkegaard

Topical Steroid Therapy

Hydrocortisone has become the most important form of topical medication to the dermatologist.

CARL W. LAYMON, M.D.*
Minneapolis, Minn.

IN A RECENT issue of a dermatologic journal there was an advertisement which stated: "Ask any skin man: If stranded on a desert island with only one topical medication available which would you choose?" The blurb continued that most dermatologists would pick tar. In my opinion most dermatologists would disagree, because the development of hydrocortisone probably represents one of the most important advances ever made in dermatologic topical therapy.

Surface Applications

The local use of cortisone for cutaneous disorders is of little or no value. Hydrocortisone, in all probability, is used more extensively than many newer steroid compounds because it is effective and much less expensive. It has been realized for a long time that hydrocortisone in a concentration of 1% works about as well as the drug in a concentration of 2½%. In fact, many observers believe that there is no appreciable decrease in therapeutic efficiency in concentrations of ½ or even ¼%. Furthermore there is no danger of systemic reactions following the topical use of hydrocortisone.

Triamcinolone, either the acetate or the acetonide, has also proved to be extremely useful in various dermatoses, with no danger of systemic absorption and resulting undesirable reactions. Experience has shown that the 0.5% triamcinolone acetonide cream and ointment are often more effective than the 0.1% preparations, and that

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some patients who fail to respond to the latter are benefited by the stronger concentration. The triamcinolone medications are sold under the trade names Aristocort and Kenalog.

Prednisolone is also used in the topical treatment of inflammatory dermatoses, usually in a strength of 0.5%. Fluocinolone acetonide (0.025%) is likewise a potent drug and may be effective in cases which are resistant to previously available steroids topically applied. It is marketed as Synalar cream manufactured by the Syntex Laboratories, Inc. Flurandrenolene (Cordran-Lilly) is also active in low concentration (0.05%). All of these steroids provide excellent antipruritic and anti-inflammatory activity.

Combined with Antibiotics

The aforementioned corticosteroids have been combined with various drugs, such as antibiotics (½% neomycin, terramycin, achromycin, bacitracin, and others). Despite the availability of hydrocortisone, of other steroids, and of the newer antibiotics for topical application, the quinoline compounds still have a place in dermatologic therapy. For example, Vioform is of some value as an antifungal and antibacterial agent, with the disadvantage, however, of being slightly messy, since it stains skin and clothing yellow and occasionally produces contact dermatitis. Sterosan is approximately as effective as Vioform and has less staining tendencies, but can also produce allergic sensitization. Both of these compounds are used in strengths of 1 to 3%.

Other antieczematous agents are also combined with various steroid compounds in the topical treatment of inflammatory dermatoses. These include crude coal tar (1-3%), liquor carbonis detergens (1-10%), ichthyol (1-5%), and naftalan (5-10%). These agents may act in various ways and combinations of ways—some by relieving itching and thus preventing scratching, some by antiphlogistic and cooling effects, some by simple protection, and some in other ways poorly understood. The steroids may be combined also with antifungal drugs such as nystatin (100,000 U./gm.), fatty acids (undecylenic, propionic, caprylic), and their salts in various concentrations (5-20%).

The Vehicle and Application

The steroids, either alone or in combination with other medications, are applied in various types of vehicles. Ointments are probably the oldest preparations employed in dermatologic therapy and are still among those most generally used. There are many ointment bases on the market today which contain emulsifying agents which combine the advantages of holding water and not becoming rancid. There are also many proprietary steroid preparations incorporated in vanishing cream bases. These vehicles do away with some of the disadvantages of ointments, but are not as emollient or penetrating. In certain situations, however, because they are less greasy, they are cosmetically more acceptable. Within the past two years steroid creams have been combined with occlusive watertight dressings in the treatment of certain chronic dermatoses, especially psoriasis. In the topical treatment of these disorders the lesions are covered with a thick layer of a steroid cream, following which the area is covered with Saran wrap or similar material. The dressing is left in place for three or four days and the procedure is repeated. In some instances it seems to add to the therapeutic effect if a layer of clean cotton cloth is dampened and applied beneath the Saran wrap. Results to date indicate that it is possible to produce fairly rapid involution of lesions of psoriasis with this form of treatment. Recurrences are common, however, and the treatment is relatively expensive. Sprays and lotions have also been employed as vehicles for the topical applications of steroids, either alone or in combination with other medications. These can be applied without trauma, will not produce maceration, and are especially useful in moist or weeping lesions where emollient action is not desired.

Sublesional Applications

The injection of corticosteroids beneath the lesions of certain chronic dermatoses is unquestionably a worthwhile addition to the dermatologists' armamentarium. Such injections have been called intralesional, subdermal, or sublesional. The terms sublesional or superficially subcutaneous are perhaps the most acceptable for this type of injection. The consensus is that triamcinolone is superior to other corticosteroids in the management of psoriatic lesions, atopic dermatitis, circumscribed neurodermatitis, alope-

cia areata, discoid lupus erythematosus, and other disorders. Triamcinolone diacetate or acetonide suspensions are injected subcutaneously in doses of 1.25 to 10 mg. per cc. Treatment should not exceed a total of 30-50 mg. of the steroid salt per week, and the procedure is contraindicated when the dermatosis is infected. I use a suspension of triamcinolone acetonide (Kenalog Parenteral—Squibb), which contains 10 mg. of the drug per cc., diluted equal parts with ½% xylocaine.

Technique

Prior to the injection the syringe should be turned up and down and rolled sideways to give uniform suspension. About 0.2 cc. are injected subdermally at intervals of about an inch. Following the treatment the lesion is massaged to assure even distribution of the medication. Subsequently, for some unknown reason a few patients develop local swelling, which usually disappears within 24 hours without sequalae. Slight temporary atrophy at the treated sites occasionally occurs and rarely there is abscess formation. These untoward effects are much less frequent if the injections are given subcutaneously rather than intradermally.

Summary

If one should ask any dermatologist stranded on a desert island, which single topical medication he would prefer, it is my opinion, with due respect to tar, that he would choose one of the corticosteroids.

SOCIALIZED MEDICINE?

Compare civil service employees as a socially bound class with those of a live organization and then think of physicians as rule bound employees instead of as independent, highly trained detectives on whom we depend for our lives. Without excessive organization and without noise, fuss, or feathers, physicians were doing fairly well until an untrained citizenry pointed its guns at them. So long as we have good physicians they will continue to smile and remain aloof and silent. Medical men and women, human and subject to the slings and arrows which greet us, are the absolute best we have to meet the physical woes which have to be met. They will remain our best bet so long as they are allowed the independence of dignity of a profession which, be it called noble or morbid, is one of our greatest needs.

Max S. Marshall
Freeman February 1962

WHAT'S YOUR DIAGNOSIS?

A 16-month-old girl was admitted to the hospital with a two-day history of fever and extreme fussiness. The mother stated that for two days the baby refused solid food but took liquids fairly well, cried a great deal more than usual, and behaved as though she had a sore throat, responding with more crying when her neck was touched.

On admission temperature was 102.2 degrees F, pulse 160/min., respirations 50 to 60/min., weight 18 lbs. Ears were slightly injected; nose, mouth and throat were negative. The neck was supple with no masses found; the chest was clear; the heart was negative; the abdomen, genitalia and extremities were all negative. Hemoglobin 11.4 gm%, white blood count 26,000 91% neutrophils, 8% lymphocytes, 1% monocytes. Urinalysis negative. Serum CO^2,-20; Chlorides, 107; Sodium, 141; Potassium 4.7: All these in mEq/l.

What is your diagnosis? See page 38.

Syphilis and Gonorrhea in Minnesota*

D. S. FLEMING, M.D.**
HENRY BAUER, Ph.D.†
R. N. BARR, M.D.#
ANNE C. KIMBALL, Ph.D.//
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"It shall be the duty of every person who makes a diagnosis of, or gives treatment for, a case of syphilis, gonorrhea, or chancroid to report immediately to the State Board of Health . . . the name and address . . . and probable source of infection of such diseased person . . ." So reads the key regulation of the Board in its continuing program to eradicate venereal disease.

As Brown points out "there are no isolated cases of early syphilis. Every case of primary or secondary syphilis is related immediately to at least one additional case, and must be considered with a sense of immediacy, whether it be treated in the office of the private practitioner or in the public clinic."[1]

How well do Minnesota physicians co-operate in reporting cases to the Board? With improved treatment methods available, an ever-increasing proportion of infected patients look to the private physician for care; at the same time the health department has well-trained personnel available to provide the tedious and time-consuming epidemiologic service required for tracing the chain of infection. This team work of private physician and and health department is the most effective control method available. Reporting of the case remains the key to its effectiveness.

Studies have shown that a sizable proportion of cases of venereal disease are not reported to health authorities. A survey[2] of general practitioners in England revealed that, for 1956, there would be a rise of about one fourth in the figures for syphilis and one seventh for gonorrhea and

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† Deputy Executive Officer and Director, Division of Medical Laboratories
Secretary and Executive Officer
// Chief, Section of Special Laboratory Studies

non-gonorrheal urethritis, if the privately-treated cases were added to those treated and recorded in the venereal disease clinics. In the United States, it has been estimated that the actual incidence of gonorrhea is five to ten times higher than is actually reported. In Minneapolis in 1960, a mail questionnaire survey[3] of physicians indicated that during a six-month period, physicians diagnosed approximately 150% more cases of gonorrhea and 146% more cases of syphilis than were tabulated by the health department, although no attempt was made to identify cases by name or to eliminate duplications.

By using the names of syphilis cases, such a survey can eliminate duplicate counts of patients seen by more than one physician, thus reducing estimates. On the other hand, such identification by name may discourage the reporting of some cases by physicians who have overlooked this official step at the proper time. This type of investigation, if used in an area where case records have been kept by name over a period of many years, provides a truer evaluation of non-reporting, in assessing syphilis morbidity.

Method of Study

In March, 1961, the Minnesota State Health Department with the co-operation and support of the Minnesota State Medical Association made a survey based on a questionnaire mailed to 3234 physicians. This questionnaire (figure 1.) listed the names of all persons reported as cases of syphilis by the physician during the calendar years of 1959 and 1960; for the same period only the number of gonorrhea cases was listed with no names given. The physician was requested to review the information, to report all additional information about possible cases of syphilis he had seen, diagnosed, or treated, and to include the correct number of gonorrhea cases he had seen during the period. The health department followed up, by mail, all physicians who did not return the questionnaire after a reasonable length of time.

Results

Of the 3234 physicians queried, 145 reported they were not in practice during the period 1959-60; of the remaining 3089, 2826 or 91.5% returned completed questionnaires, rural and metropolitan practitioners being equally well represented (Table 1).

Figure 1

MINNESOTA DEPARTMENT OF HEALTH
SURVEY QUESTIONNAIRE

Dear Dr.

The incidence of venereal diseases in many states including Minnesota is on the increase. In order that we may evaluate the true incidence of syphilis and plan our control efforts to meet these recent increases we are requesting your participation in the survey conducted jointly by the Department and the State Medical Association, as announced in the March issue of the Association's Newsletter.

We have listed below the names of syphilis cases and the number of gonorrhea cases our records show you reported in the calendar years of 1959 and 1960. There is a possibility that some cases may not appear because they were thought to have been previously reported from some other source. Please list any such cases of syphilis that you have seen, diagnosed or treated during 1959 and 1960, and the number of cases of gonorrhea.

Name	Address	Age	Sex	Stage of Syphilis

Gonorrhea: total number of cases in 1959 and 1960 _____

Return this completed sheet in the enclosed envelope. Your cooperation in this matter is greatly appreciated.

Physician Response

During 1959 and 1960, 599 physicians had reported cases of venereal disease prior to the survey; 582 or 97.2% of these physicians returned questionnaires. All 156 physicians who had reported syphilis cases participated in the survey.

Table 1

SURVEY SAMPLE

Number of physicians queried			3234
Not in practice in 1959-60			145
Practicing in:	Metropolitan Areas	Rural Areas	Total
	1710	1379	3089
Questionnaires Completed	1576 (92.2%)	1250 (90.6%)	2826 (91.5%)

Institution Response

Questionnaires likewise were received from 24 institutions, including the University Hospital. Table 2 presents the number of physicians and institutions which supplied additional case information and likewise the number supplying information on new cases.

Names of individuals rather than numbers were supplied for syphilis cases by almost all private physicians and by all institutions supplying additional information on the questionnaires (Table 3). These names could thus be checked with previous records to eliminate duplicates for

132 of the 142 individuals reported. A considerable number of private physicians and a few institutions also supplied names for cases of gonorrhea, thus providing an opportunity to check for duplicate reports in a portion of the gonorrhea cases.

Table 2

SOURCE OF SURVEY DATA

	Physicians		Institutions	
	No.	%	No.	%
Total number returning questionnaire	2826	100.0	24	100.0
Syphilis:				
Number supplying additional information	56	2.0	7	29.2
Number supplying cases accepted as previously unreported	16	0.6	3	12.5
Gonorrhea:				
Number supplying additional information	124	4.4	2	8.3
Number supplying cases accepted as previously unreported	104	3.7	1	4.2

Unreported Cases of Syphilis

One hundred and forty-two individuals were included as syphilis cases on all questionnaire returns. If only numbers of cases had been reported, it is reasonable to assume that all of these individuals would have been counted as unreported cases; this would represent an additional 38% of cases of syphilis unreported in 1959-1960, when 377 cases were reported. In Table 3 the classification of 132 of these 142 individuals is shown for cases included in the survey by private physicians and by institutions. Checking in the official records indicated that 61 persons had been reported prior to 1959; 29 had been reported in 1959 or 1960 by another physician or institution; 16 had been reported in 1961 prior to the date the survey data were received. New names were limited to 26 (19.7%) of the 132 named individuals. This would represent an additional 7% of syphilis cases unreported in 1959-1960 when 377 were reported.

If the 10 unnamed individuals are added to the 26 names, this would represent 36 cases or an additional 9.5% cases unreported in 1959-1960.

Gonorrhea Cases

Similar data are presented for gonorrhea on Table 4, although names were supplied for only 96 of the 348 total possible cases. Checking these names in the official records indicated that 63 or 66% were new cases. Additional numbers of possible cases were frequently stated, but indefinitely. For this reason the numbers are given as a minimum of 204 and a maximum of 348. In addition a considerable number of physicians reported treating suspected but unproven cases of gonorrhea not included in the totals shown in Table 4.

If the 63 named cases are added to the minimal and maximal number in Table 4, there were 267 to 315 unreported cases in 1959 and 1960, which would mean an additional 21.1% or 25.1% of gonorrhea cases unreported in 1959-1960 when 1251 cases were officially reported.

Table 3

NEW SYPHILIS CASES REPORTED BY SURVEY

	By Private Physicians		By Institution		Total
	No.	No.	No.	No.	
Cases identified by name of patients	60		72		132
Cases reported prior to 1959		24		37	61
Cases reported in 1959 or 1960 by another physician or institution		7		22	29
Cases reported in 1961 prior to date of survey		15		1	16
New names—no previous report		14		12	26
Number of cases only (no name given)	10		0		10
Total	70		72		142

Discussion

Few studies on completeness of reporting of venereal diseases can take advantage of the use of names to eliminate duplication. Preceding such a study, it is necessary to have a long continued venereal disease control program, including reporting by name. It is also valuable, though not necessary, to conduct such a study in an area with a low venereal disease rate in order to avoid the formidable task of checking thousands of names in a file containing tens or hundreds of thousands of names. Minnesota is fortunate in

Table 4

NEW GONORRHEA CASES REPORTED BY SURVEY

	By Private Physicians No.	No.	By Institution No.	No.	Total
Cases identified by name of patient	84		12		96
Cases reported prior to 1959		3		1	4
Cases reported in 1959 or 1960 by another physician or institution		12		4	16
Cases reported in 1961 prior to date of survey		12		1	13
New name— no previous report		57		6	63
Number of cases only (no name given)	204-252		0		204-252
Total	288-336		12		300-348

*Minimal and maximal figures are shown for indefinite statements, such as: "3 or 4 cases" or "6 cases but some may have been reported by Dr. _____".

being able to undertake this type of study on syphilis. The use of names was not attempted for gonorrhea because of the difficulty in distinguishing reinfection from recrudescence. As an extreme example, one of the cases previously reported as gonorrhea and shown in Table 4, has been reported eleven times in a 20-year period, and this current listing may or may not represent the twelfth infection.

The partial use of names for unreported gonorrhea has been presented (Table 4) because of the interesting contrast as compared to syphilis. Among the named cases of gonorrhea, 63 of 96, or 66% were new names; in syphilis cases, only 26 of 132, or 20% were new names. This high percentage of new names attests that there was a large group of unreported gonorrhea cases, included only by number; but it does not indicate that the same percentage could be eliminated from the reported-by-number group, because the proportion for whom names were supplied was not a randomly-selected sample. Since the total number of gonorrhea cases reported in the survey can be stated only as minimal and maximal numbers, there would seem to be little justification for any correction.

The few additional cases of gonorrhea supplied by institutions may mean that the unreported cases of gonorrhea and of syphilis were not given equal attention.

In Minnesota, venereal disease control efforts have emphasized for almost fifty years the role of the private practitioner in diagnosing and treating venereal disease. The State Health Department has supplied excellent laboratory services, a central case register of confidential information about cases reported, and epidemiologic assistance in case interviewing, case holding, and contact tracing. Consultant services and free treatment drugs where necessary have been furnished consistently for many years. Co-operation between the health department and physicians has been excellent. Despite these favorable circumstances, Minnesota has shown during the last two years a marked rise of new cases of syphilis, especially in the early infectious stages (Table 5). As Brown[1] points out, "One course of action is indicated. If we are to make real and lasting progress against this disease, we must do everything in our power now to recognize every outbreak of syphilis and to bring it under control with the greatest speed and efficiency."

Table 5

CASES OF SYPHILIS AND GONORRHEA REPORTED IN MINNESOTA 1959, 1960, 1961

Year	Syphilis	Gonorrhea
1959	157	1098
1960	220	1423
1961	319	1900

Summary

1. The high level of participation in the survey (91.5%) indicates the excellent co-operation of the physicians in Minnesota in venereal disease control work.

2. When names of cases are used, rather than numbers, markedly fewer additional unreported cases of syphilis than of gonorrhea are found by survey.

3. This survey indicates that at least an additional 9.5% of syphilis cases and at least 10 to 12% of gonorrhea cases were unreported in 1959-1960.

4. There is evidence that a constant reminder to the private practitioner to report all cases of venereal disease is still necessary.

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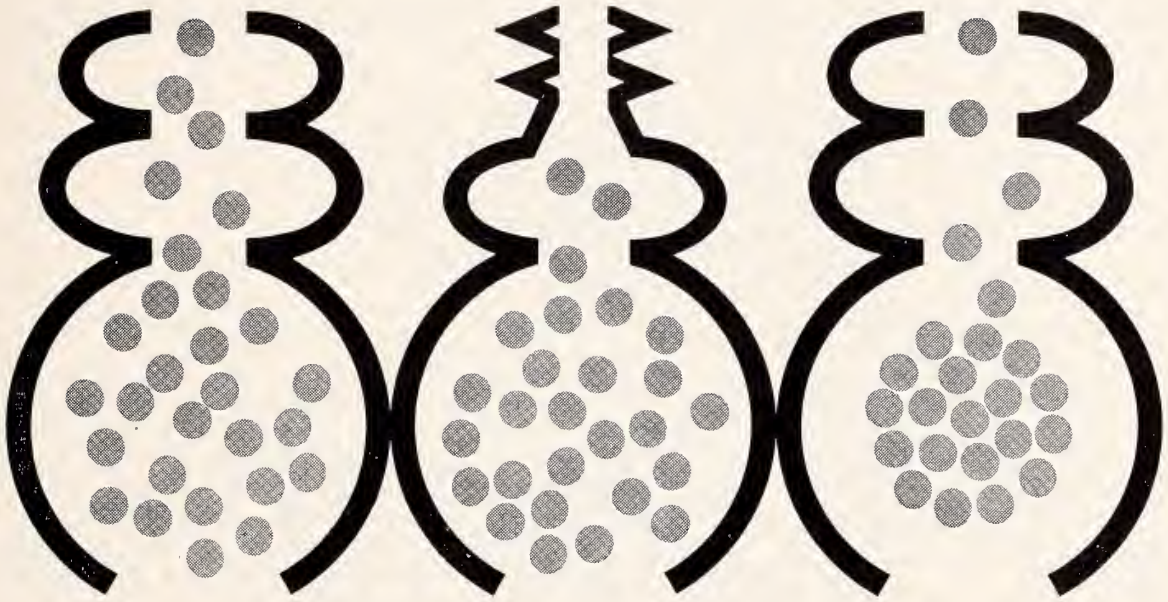
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ANSWER TO WHAT'S YOUR DIAGNOSIS

(From page 33)

The admission chest X ray showed an open safety pin in the cervical region with the trachea shifted by soft tissue swelling as shown in the accompanying figure. It was interpreted to lie within the esophagus. The point had perforated the gullet and the endoscopist was unable to close the pin or retract it. Protecting the point inside the esophaguscope the open safety pin was manipulated into the stomach. The following day it was removed from the stomach by gastrotomy. On direct questioning the mother admitted that she missed the safety pin while diapering the baby on the day of the onset of the symptoms.



lowers motility | relieves cramping | stops diarrhea

LOMOTIL® Antidiarrheal tablets and liquid

(brand of diphenoxylate hydrochloride with atropine sulfate)

Traditionally the most effective means of slowing excess intestinal motility in diarrhea and so of relieving the disorder have been the opium derivatives. Now Lomotil makes available an antidiarrheal agent[1] of greater therapeutic efficiency than morphine.

By controlling hypermotility, the basic mechanical dysfunction of diarrhea, Lomotil reduces the frequency and fluidity of stools, diminishes cramping and controls diarrhea in many patients in whom other drugs have proved inadequate.

In a recent clinical report Cayer and Sohmer[2] state: "The alleviation of symptoms [with Lomotil] was usually prompt, occurring within 24 to 72 hours even in the long-standing chronic cases. . . . A surprisingly satisfactory response was obtained in 75 per cent of the patients with regional enteritis and in 63 per cent of those with ulcerative colitis, all of whom had failed to respond to other measures."

The high therapeutic efficiency of Lomotil, its safety, convenience and economy may be used to advantage in acute or chronic diarrhea.

Dosage: For *adults* the recommended initial dosage is two tablets (2.5 mg. each) three or four times daily. Maintenance dosage may be as low as two tablets daily.

Lomotil is supplied as unscored, uncoated white tablets of 2.5 mg. and as liquid containing 2.5 mg. in each 5 cc. A subtherapeutic amount of atropine sulfate (0.025 mg.) is added to each tablet and each 5 cc. of the liquid to discourage deliberate overdosage. Recommended dosage schedules should not be exceeded.

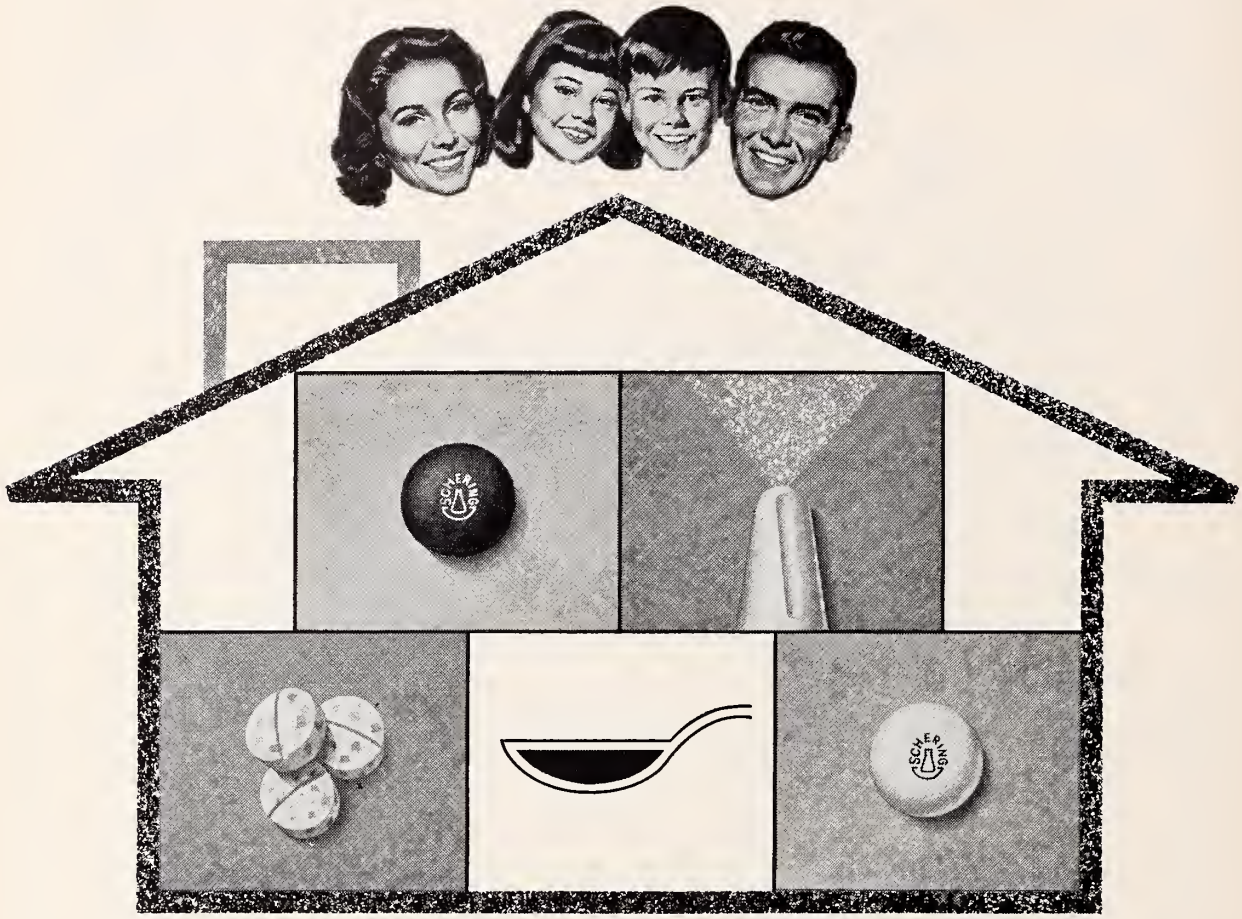
Note: Lomotil is an exempt preparation under Federal narcotic statutes.

Detailed information and directions for use in children and adults are available in Physicians' Product Brochure No. 81. G. D. Searle & Co., P. O. Box 5110, Chicago 80, Illinois.

1. Janssen, P. A. J., and Jageneau, A. H.: A New Series of Potent Analgesics: Dextro 2:2-Diphenyl-3-Methyl-4-Morpholino-Butyrylpyrrolidine and Related Amides. I. Chemical Structure and Pharmacological Activity, J. Pharm. Pharmacol. 9:381-400 (June) 1957.
2. Cayer, D., and Sohmer, M. F.: Long-Term Clinical Studies with a New Constipating Drug, Diphenoxylate Hydrochloride, N. Carolina Med. J. 22:600-604 (Dec.) 1961.

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for colds

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CORICIDIN,® brand of antihistamine-analgesic-antipyretic compound.

President's Letter

LOOKING FORWARD — 1963

The start of the New Year is traditionally a time for resolutions.

For many organizations, both in business and other fields of endeavor, it is likewise traditionally a time for the establishment of goals or objectives for the coming year.

As the New Year also marks the beginning of my year as President of the State Medical Association, it seems fitting in this my first President's page to set forth some of the objectives which I hope will be attained during the year.

The first objective is to achieve a better coordination and cooperation between the county medical societies and the state Association. I have long felt that many of our members are not well informed concerning the activities of the State Association and that it is essential that action be taken to bring to them knowledge of the various activities of our Association. With the view to aiding in bringing such information to the membership I will be very happy to talk at county society meetings whenever invited to do so. Mr. Brunn our Executive Secretary has expressed the desire to accompany me on such visits and I feel that we can jointly bring a good deal of detailed information about State Association activities to our members in this manner. I hope that many societies will extend such invitations to us.

Another objective which I hope may be attained is to work with Blue Shield and Blue Cross and also with the commercial insurance companies in efforts to improve health coverage for all of our citizens. I hope that actions can be taken to eliminate to the greatest extent possible abuses which although occurring only occasionally are detrimental to the expansion of these programs. The actions of a very few cause widespread criticism of our profession. It is essential that we as physicians take prompt and effective action in such cases.

A third objective is in the legislative field. It is hoped that this year will see a resolution of the osteopathic problem along lines agreed upon by the joint committee of osteopaths and physicians appointed by the Governor at the request of the two groups. It is also hoped that favorable legislation will be passed implementing the Kerr-Mills Bill in Minnesota. A committee of our Association has prepared a draft of a bill embodying the Associations views on this matter and this will be introduced at the next legislative session.

A fourth objective is the revision of the Association's committee structure. At present we have a total of 42 committees — 20 scientific and 22 nonscientific. Some of these committees are very active but others meet very rarely and in fact some have held no meetings for several years. It is felt that in some cases two or more committees might be combined and in others that the need for the committee has passed and such committees might well be eliminated. It is planned to ask the Council to conduct a study of our committee structure and to present recommendations for such revisions as may be felt desirable at the next annual meeting.

A fifth objective pertains to the annual meeting which will be held in Duluth, Minnesota, May 20, 21 and 22, 1963. The committee on scientific assembly is preparing what is believed will be an outstanding program for this meeting. We have hopes for a record attendance. Please note the dates on your calendar and plan now to attend.

In closing this first President's message, I pledge my best effort for the progress of the State Association during the coming year and ask the cooperation of each member. I shall at all times be happy to receive your comments, criticisms and suggestions.



Donald McCarthy, M.D.
President
Minnesota State Medical Association



who coughed?

HYCOMINE® SYRUP for COUGHS

provides fast and long-lasting cough control

relieves cough in 15-20 minutes • lasts 6 hours or longer • promotes expectoration and decongestion of air passages • rarely constipates • agreeably cherry-flavored

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Hycodan®	6.5 mg.
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(Warning: May be habit-forming)	
Homatropine Methylbromide	1.5 mg.
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Average adult dose: One teaspoonful after meals and at bedtime. May be habit-forming. On oral prescription where state laws permit. U.S. Pat. 2,630,400.

Literature on request

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Editorials

Foreign Bodies in the Esophagi of Children



THE CHILD of one to four years frequently challenges the physician because of his strong desire to examine all material with his mouth. The catholic tastes of these children are represented in the reported objects removed, by one means or another, from entrapment in the gullet: coins, bus tokens, open safety pins, marbles, straight pins, chicken bones, whistles, tacks, jacks, bottle caps, paper clips, fish bones and tiddle-de-winks among others. [1, 2, 3] The narrowest part of the alimentary canal is the esophagus, principally at three points: the cricopharyngeus muscle, the level of the diaphragm, and occasionally the arch of the aorta.[2] If an object can pass these points into the stomach it usually will easily traverse the rest of the gastrointestinal tract. The most common object found in the esophagi of children is an open safety pin, six of which were found among 144 foreign bodies swallowed. [2] A typical example of an open safety pin in the esophagus is given in this issue of MINNESOTA MEDICINE on page 33. Endoscopy is urgently indicated because of the obvious danger or perforation.

Once the foreign body is in the stomach, the physician must have patience. Radiologic follow-up and careful examination of all stools are necessary. There is only a remote possibility of an open safety pin or other pointed object becoming lodged in the duodenal curves or perforating the intestines as it moves along. With evidence of steady progress, the foreign body usually will be passed per rectum within a few days, although occasionally weeks are required for the entire journey. A safety pin may become lodged in the rectum, but even here patience often is rewarded with the last traumatic method of removal of the offending object by defecation. Where strictures are encountered, with large objects, and when the foreign body is shown to cease its progress, laparotomy is justified.

Bradley Appelbaum, M. D.
Chicago, Illinois

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Are We Losing Our Sense of Values

SHE WAS in a rear-end collision. The impact was sudden, unexpected, frightening. There were no cuts or bruises and no immediate symptoms. The exchange of license numbers was perfunctorily recorded; apologies were given and grudgingly acknowledged.

It was only natural to relate this incident to her friends and office acquaintances. Compensation was suggested; cases were cited. Settlements had been made with others and some of them sounded fantastic. The damage to the car wasn't much, but didn't *she* get hurt at all? Her neck was jerked and isn't that what they call a whiplash injury?

Her attorney had inquired into a multiplicity of possible symptoms which she did not have. On second thought, however, perhaps she did have some pain. The thought of litigation irritated her and made her jittery. Now the kids began to get on her nerves; insomnia set in; the neighbors began to notice a change in her personality; her husband complained. — Her doctor prescribed tranquilizing drugs.

She then began to envision the possibility of a satisfactory settlement—the damage to the car and a few extra dollars. After a considerable delay, settlement was offered; but now her mind began to play tricks. Her sense of values was

Continued

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'Sudafed'® brand Pseudoephedrine Hydrochloride	20 mg.
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Acetophenetidin	150 mg.
Aspirin (Acetylsalicylic Acid)	200 mg.
Caffeine	30 mg.

*Warning—may be habit forming.

Complete literature available on request.

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TABLETS



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changing. Some of the symptoms her attorney had inquired about began to seem real: headache, neckache, emotional upset. And didn't she have pain in her arm, someone asked.

Her doctor realized the functional nature of her symptoms; but it was hinted by someone that a brain wave test should be made. So a specialist was called in and an electroencephalogram was done, which showed one or two impulses to be slightly different. A second electroencephalogram, however, was normal. So now it was one-up! Perhaps a third such test would be necessary in a month or so. Might it not be possible that iatrogenic symptoms were now developing to make a reasonable settlement impossible for the present?

Even if there were no organic findings now, might not some develop in the future? By now a settlement was being envisioned large enough to pay off the mortgage on the house, or for a trip abroad, or as a nice nest egg. The insurance adjuster could just wait a while longer!

* * * * * *

The liability insurance carried by motorists is designed to protect them against unforseeable and unpredictable financial burdens; and the mounting increase in premiums resulting from frequent cases like that above is a profound disservice to the public. It is a profound disservice to ourselves as well.

Are we losing not only our sense of values but our moral perspective also?

Carl O. Rice, M.D.
Minneapolis, Minnesota

Letters to the Editor:

To the Editor:

I particularly enjoyed your editorial on "The Ostrich Dressing" because your comments fit in so well with my own concepts about this. I gave up using dressings completely about seven years ago, and by completely, I mean just that, except in those rare situations where there is drainage from a wound, such as the case where a drain has been left in, a colostomy has been opened, etc. In all other cases — thoracic, abdominal, head and neck, breast — everything else — I close the wound in the operating room and that's it. I use no dressings whatsoever and because of this (or in spite of this) I have had an extremely low wound infection rate.

There are many reasons why I think a dressing is not indicated, and the primary one is that it is not needed. Within a few minutes after the wound has been sutured, it is sealed and is impervious to bacteria. Secondly, dressings are expensive — each 4 x 4 dressing costs several cents — and a large dressing changed several times can cost the patient and the hospital a large amount of money. Another factor of importance is that it saves the intern from having to spend time going around checking dressings when he could more profitably be learning or doing something else of value.

By not using dressings, one has easy visual access to the wound, and the incision can be checked several times daily without causing the patient discomfort. Lastly, and also of great importance, is the fact that from the psychological point of view, the patient does not feel quite as sick if no dressing is used. The dressing implies that the illness is severe and is being hidden from him, whereas, if he can look down and see the incision and see that it is healing, he knows that he can go back to work as soon as possible.

Albert Sullivan, Jr. M. D.
Minneapolis, Minnesota

To the Editor:

I'd like to compliment you on your editorial in the October Minnesota Medicine on tranquilizers. More power to you along this line!

We need some authoritative antidote against the million dollar propaganda by the drug cartel to brainwash us!

H. W. Arndt, M.D.
Detroit Lakes, Minnesota

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USUAL DOSAGE: 2 tablets, 4 times a day. Maintenance dosage is frequently lower.

Dispensed in bottles of 40 and 250 tablets.

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Giant Cell Tumors

QUESTION: My patient had a bone tumor removed from the distal phalanx of a thumb which proved to be a giant cell tumor. A second operation was a slightly more extensive curetting of the bone. The lesion again recurred and the patient now has a mass in the thumb. At this stage what treatment should I recommend? The histologic section on two occasions revealed giant cell tumors. There is no lymph adenopathy. *M.D. — Duluth*

ANSWER: Giant cell tumors of the distal extremities are benign and present only a problem of local invasion. In the case stated, more information would be desirable particularly X-ray evidence of the extent of osseous involvement. Unless the process involves the entire phalanx, further curettment followed by cauterization would be indicated. If this is successful, it is sometimes possible to reconstruct the digit by the use of a bone graft. If further attempts at local excision are unsuccessful, then disarticulation of the phalanx will be necessary to eliminate the condition.

A Positive Wasserman

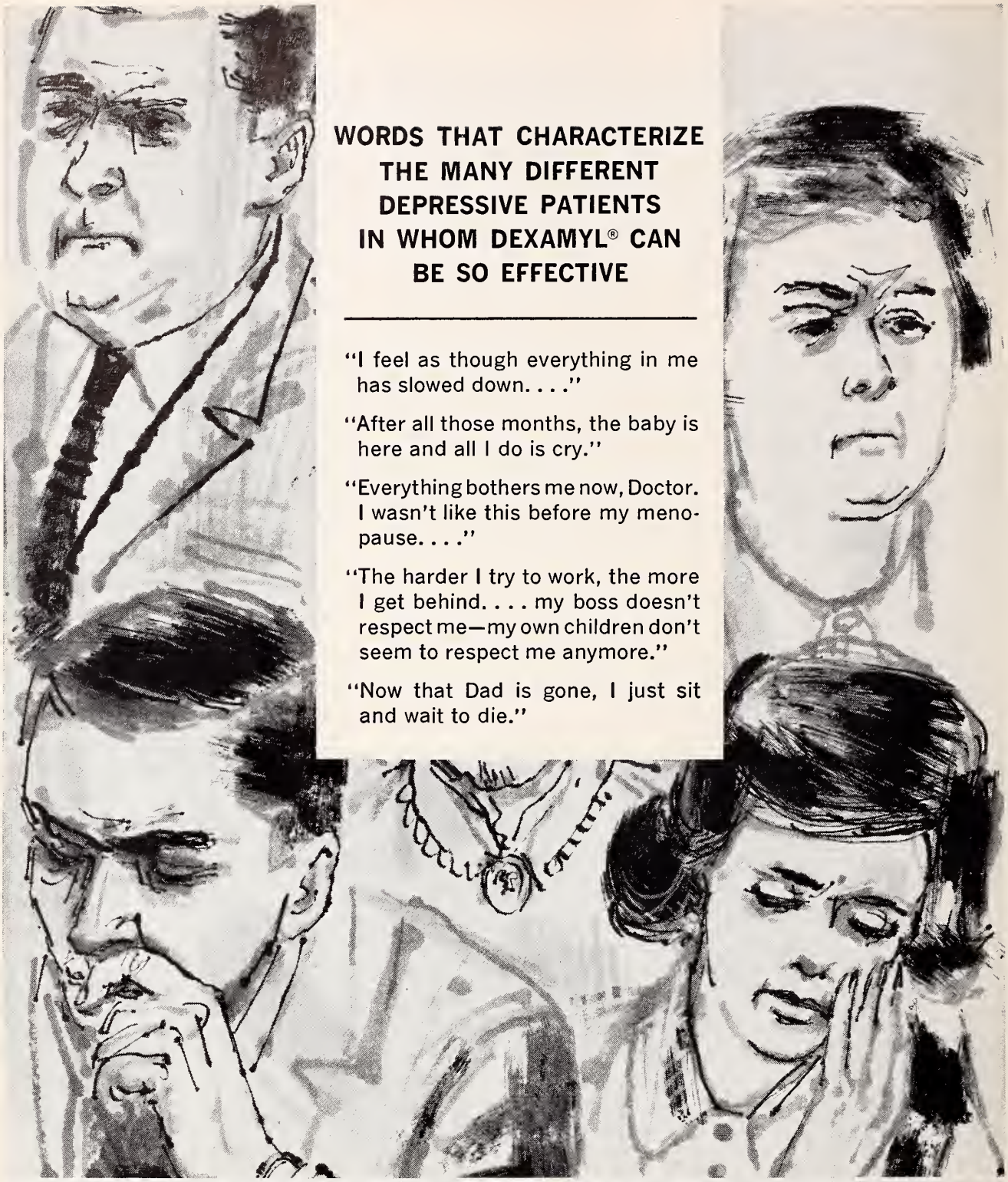
QUESTION: In the course of doing a routine physical examination for employment, the state board of health after four days reported a positive Wasserman. The applicant is not working in the food industry. What is my responsibility at this point to the patient and to the employer? *M. D. — Minneapolis*

ANSWER: The question of releasing information obtained in the course of an examination which may be detrimental to the patient rests fundamentally with the patient's permission to release such information. The patient should be informed of the finding, and further details of the history, physical examination and serological studies performed to determine if syphilis is actually present or whether the test represented a biological false positive. The employer can be informed that a possible abnormality exists and that further studies are necessary to make a definite diagnosis without releasing specific information, if the patient gives his permission for this in writing. If active syphilis is present, the case is ordinarily reportable to the state board of health, although the laws relative to this vary in the different states and it would be well to determine the exact legal status of this disclosure if the patient does not voluntarily agree to cooperate in the case-finding program.

Electroencephalogram

QUESTION: A farmer fell about 12 feet off his barn and was unconscious for a few moments. Physical examination revealed no abnormal organic findings but he does have a sore neck. X-ray reveals no abnormalities either in the skull or in the neck. He seems to act normally. How important is it to have an electroencephalogram? *M. D. — Rochester*

ANSWER: Ordinarily, a head injury, with the findings as described, would not require an electroencephalogram, if the physical findings remain normal and there are no symptoms of central nervous system damage. Should the case involve litigation, however, then an electroencephalogram would be desirable as a base line and would ordinarily be requested by the defendant or plaintiff in the case.



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"I feel as though everything in me has slowed down. . . ."

"After all those months, the baby is here and all I do is cry."

"Everything bothers me now, Doctor. I wasn't like this before my menopause. . . ."

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"Now that Dad is gone, I just sit and wait to die."

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FORMULA: Each 'Spansule' capsule No. 1 contains 10 mg. of Dexedrine® (brand of dextro amphetamine sulfate), and 1 gr. of amobarbital, derivative of barbituric acid [Warning, may be habit forming]. Each 'Spansule' capsule No. 2 contains 15 mg. of 'Dexedrine' (brand of dextro amphetamine sulfate) and 1½ gr. of amobarbital [Warning, may be habit forming]. The active ingredients of the 'Spansule' capsule are so prepared that a therapeutic dose is released promptly and the remaining medication, released gradually and without interruption, sustains the effect for 10 to 12 hours.

INDICATIONS: (1) For mood elevation in depressive states; (2) for control of appetite in overweight.

USUAL DOSAGE: One 'Dexamyl' *Spansule* capsule taken in the morning for 10- to 12-hour effect.

SIDE EFFECTS: Insomnia, excitability and increased motor activity are infrequent and ordinarily mild.

CAUTIONS: Use with caution in patients hypersensitive to sympathomimetic compounds or barbiturates and in coronary or cardiovascular disease or severe hypertension.

SUPPLIED: 'Spansule' capsules No. 1 (1 dot on capsule) and No. 2 (2 dots on capsule), in bottles of 30.

Prescribing information October 1962.

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Abstracts and Briefs

REGIONAL ENTERITIS

A followup review of 257 patients operated upon for regional enteritis in a ten year period at the Mayo Clinic has been evaluated. Eighty-six percent were treated by resection of involved bowel and a primary anastomosis. Short circuiting procedures comprised 12.8 percent of the initial operations. Forty percent of these short circuit or by-pass procedures required further operative treatment for recurrent disease, while only 16 percent of those having primary resection as the initial treatment required a second procedure to treat recurrence. It is interesting to note that there was a 9.8 year interval, as an average, between initial and secondary procedures in those requiring secondary procedures for recurrence.

Chronic partial obstruction of the small intestine was the most frequent indication for operation. An abdominal mass with chronic perforation was the second most common indication.

It is interesting to note that in individuals having had previous operations acute appendicitis had been the preoperative diagnosis in 39.1 percent, and of this group 38.5 per cent undergoing an appendectomy developed a fecal fistula or an abdominal abscess subsequent to that procedure.

The authors feel that a fairly sizable segment of small intestine may be removed, particularly if it does not include the ileocecal valve and the short section of terminal ilium adjacent to it. A large section of jejenum is not well tolerated. They have also concluded that some of the skip areas may be left without resection with anticipation of healing with medical management in the postoperative period.

Particularly in view of the current recommendations of Crohn himself, and also many surgical groups who prefer the bypass procedures, the findings in the sizable series herein reported offer the surgeon reasons for careful consideration of the procedure of choice in an individual case or problem rather than rote acceptance of a "popular" trend. The results in the Mayo Clinic report certainly favor initial removal of the diseased bowel.

J. H. Strickler, M.D.
Minneapolis, Minn.

Barber, K.W., Waugh, J.M., Beahrs, O.H., and Sauer, W.J. "Indications for and the Results of Surgical Treatment of Region Enteritis" Ann Surg 156:472, Sept, 1962.

UREA FOR INTRACRANIAL PRESSURE

A reduction in the intracranial pressure is often desirable but difficult to accomplish and a simple method has long been sought. The use of hypertonic solutions of urea has recently become popular largely because of its presumed lack of a "rebound" effect. Administration of urea (Urevert; 1-1½ gm./kg. over 15 minute period) to dogs produced a fall in the cisternal pressure beginning within 15 minutes and becoming maximal in 60 to 90 minutes. Four to 6 hours later the cisternal pressure had risen to levels higher than those at the onset of the experiment. This suggests that a "rebound" effect does occur under these circumstances.

Robert Siekert, M.D.
Rochester, Minn.

Clark K. and Einspruch, B. C. "Lowering of Intracranial Pressure with Urea" Arch Neurol 6:92, May, 1962

SCLERODERMA

This study is concerned with a series of 60 patients treated with a chelating agent, disodium edetate, and followed from 2 to 4 years. Of the 60 patients followed 41 were alive and 19 were dead. Response of the 41 patients to chelation was determined from interviews and questionnaires. The criterion for improvement was primarily a decrease in sclerosis as evidenced by increased mobility of the skin and joints.

The authors noted that the clinical course of the patients treated with disodium edetate was not significantly different from that of patients not so treated. They also suggest that routine use of a chelating agent is unwarranted because of the dangers inherent in the use of it and the small change for improvement with the drug.

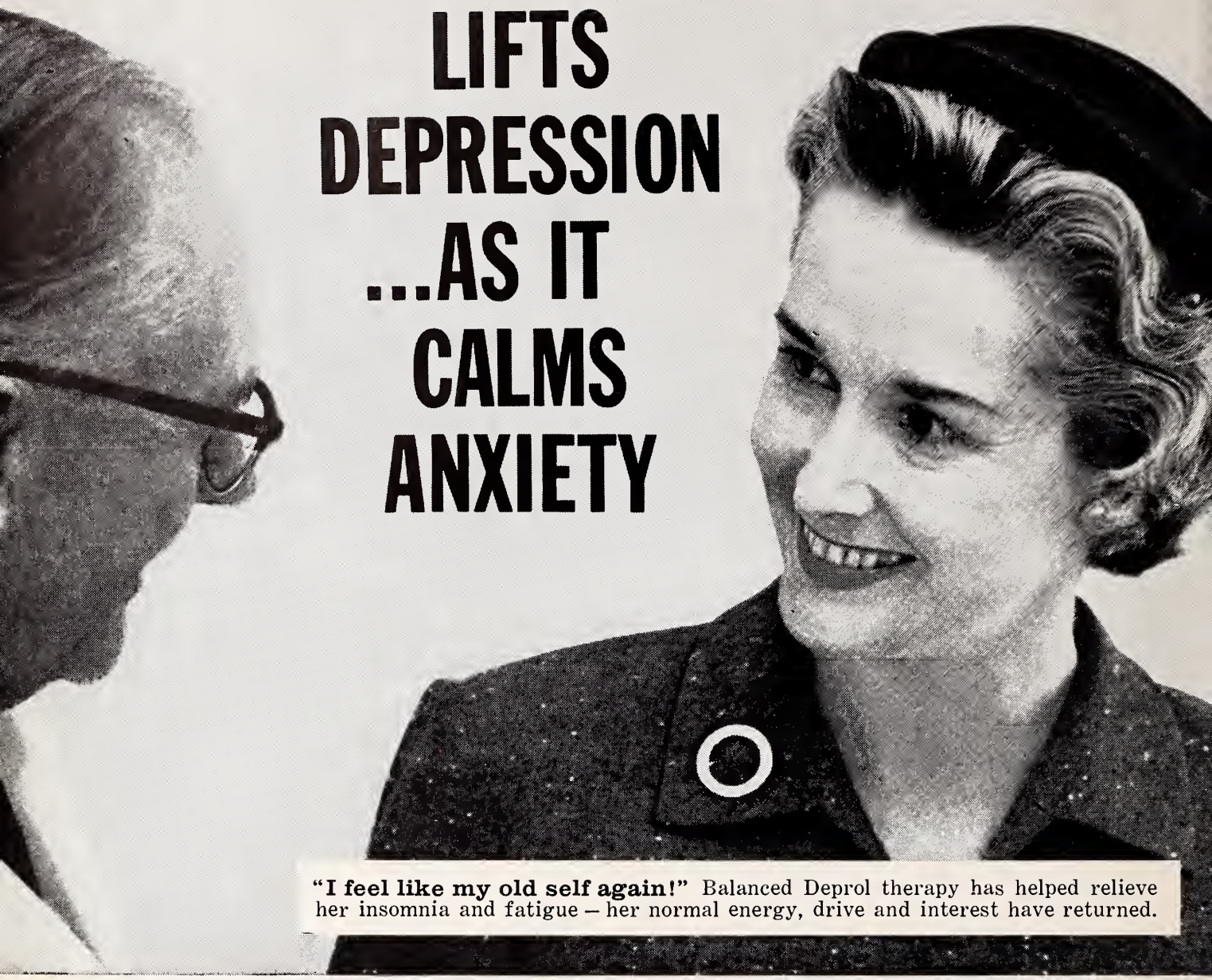
This is an important study regarding the "long term" result of chelation in scleroderma. As is often the case many new modes of therapy do not stand the test of time.

A. S. Zelickson, M. D.
Minneapolis, Minn.

Nelder, K. H., Winkelmann, R. K. and Perry, H. O.: Scleroderma, An evaluation of treatment with disodium edetate. Arch Derm 86:305, 1962.

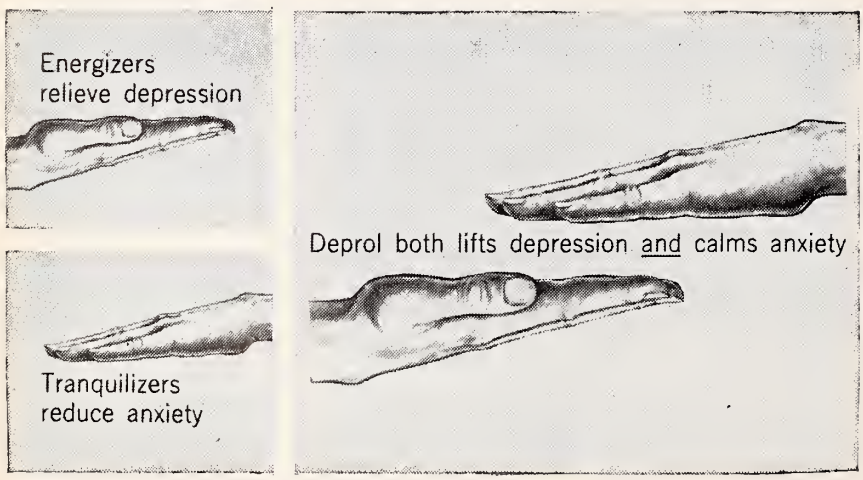
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"I feel like my old self again!" Balanced Deprol therapy has helped relieve her insomnia and fatigue – her normal energy, drive and interest have returned.

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Composition: 1 mg. 2-diethylominaethyl benzilate hydrochlaride (benactyzine HCl) ond 400 mg. meprobomate.

Supplied: Battles af 50 light-pink, scored toblets.

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Cranbury, N.J.

DEXEDRINE POISONING

The reported incidence of dextroamphetamine poisoning is not as great as one might expect in view of the widespread use of this drug. Enough was produced in 1959 (75,000 pounds) to provide 20 tablets for each man, woman, and child in the U. S. The drug is being sold without prescription, particulary to truck drivers, and illicit traffic is of concern to the U. S. Public Health Service.

Of the 45 cases of dextroamphetamine poisoning reported in 1959 to the Boston Poison Information Center, 38 were in children under 5 years of age. A typical case is reported in detail. A 3-year-old boy ingested 100 mg. of the drug, and it was not until about 2 hours later that the mother noticed that he had become increasingly hyperactive and was talking constantly. About 4 hours after ingestion the child reached the emergency room of a hospital, where only a few fragments of the tablets were seen in the aspirate when the stomach was lavaged. He was given 300 mg. of amobarbital sodium intravenously, followed by 4 additional doses of 100 mg. by intramuscular injection at 4-hour intervals. The boy was symptom-free 30 hours after admission, and he seemed to be normal when seen a month later.

The findings in dextroamphetamine poisoning are based largely on its ability to stimulate (1) effector organs innervated by adrenergic nerves and (2) the central nervous system. A review of the literature showed that death is rare from acute dextroamphetamine poisoning and that in most cases the findings are mild. Only 2 fatal cases in children were found during a review of the recent literature, and 1 of these could not be definitely attributed to dextroamphetamine.

Toxicity data for monkeys indicate that the lethal dose for a child may be 5 mg/kg and that for an adult, 20 mg/kg. Idiosyncrasy to the drug was doubtless responsible for the cases in which as little as 10 mg. reportedly caused death.

There is no known specific antidote to use in dextroamphetamine poisoning, and therapy is symptomatic. Emesis should be induced in the initial period after ingestion, in preference to the use of lavage for removing tablets from the stomach. Treatment suggested for mild cases is a small amount of paraldehyde (0.15 to 0.3 ml/kg by rectum with cottonseed or olive oil) or short-acting barbiturate. Many mild cases need no treatment at all. When symptoms are severe or a near-lethal dose has been ingested, the patient should be hospitalized and treated with paraldehyde or a short-acting barbiturate. Sedatives should be used cautiously, since many commercial preparations of dextroamphetamine contain a barbiturate and because there is a post-depressive phase with this drug. Hydration is very important. Extracorporeal dialysis and antihypertensive measures should be considered in severe cases with high blood levels, and urea should perhaps be used intravenously if symptoms of cerebral edema appear.

Courtesy of Abstracts
Farley Manning Associates

Ong, B. H. New Engl J Med, 266:1321, June 21, 1962

ABDOMINAL AORTOGRAPHY

One of the prominent advances of modern times in the management of vascular disorders has been the technic of radiological visualization by injection of contrast media. The occurrence of serious complications, however, has been a drawback to acceptance of aortography for general clinical use. The authors attempt to assess the value and hazards of abdominal aortography by review of 2,399 abdominal aortograms and 910 femoral arteriograms in 1,502 cases from the Henry Ford Hospital.

Indications for angiography, the details of methods employed, and the equipment required are described in detail in the review. The article is well illustrated and the results fairly appraised.

Complications are discussed under the following categories:

1. Sensitivity to contrast media.
2. Anesthetic complications.
3. Technical errors. (extravasation, intravasation, misdirected injections, excessively high punctures.)

Minor complications occurred in 73 patients or 2% of cases. (the most common of these was backache.)

There were eight major complications. One of these led to death and another to loss of a limb. Among the major complications were subarachnoid hemorrhage due to improper anesthesia technics, severe hypersensitivity reaction to the contrast medium, an episode of unrelated non-fatal myocardial infarction, hemothorax, and vascular thrombosis.

From the review of their data the authors stress the following: Low aortic puncture is a preferable method to high puncture. Sodium diatrizoate (Hypaque) is a safer medium than sodium acetrizoate (Urokon). There is a higher incidence of complications with higher doses of contrast media. Local anesthesia is preferable to general anesthesia where feasible.

The operator must have a proper attitude in that he recognizes the possible complications and does not lightheartedly regard angiography as a "minor" procedure.

Particular stress is given to safeguards in the technic of injection, especially as regards fastidious positioning of the needle with the aid of reliable landmarks and the injection of the test dose.

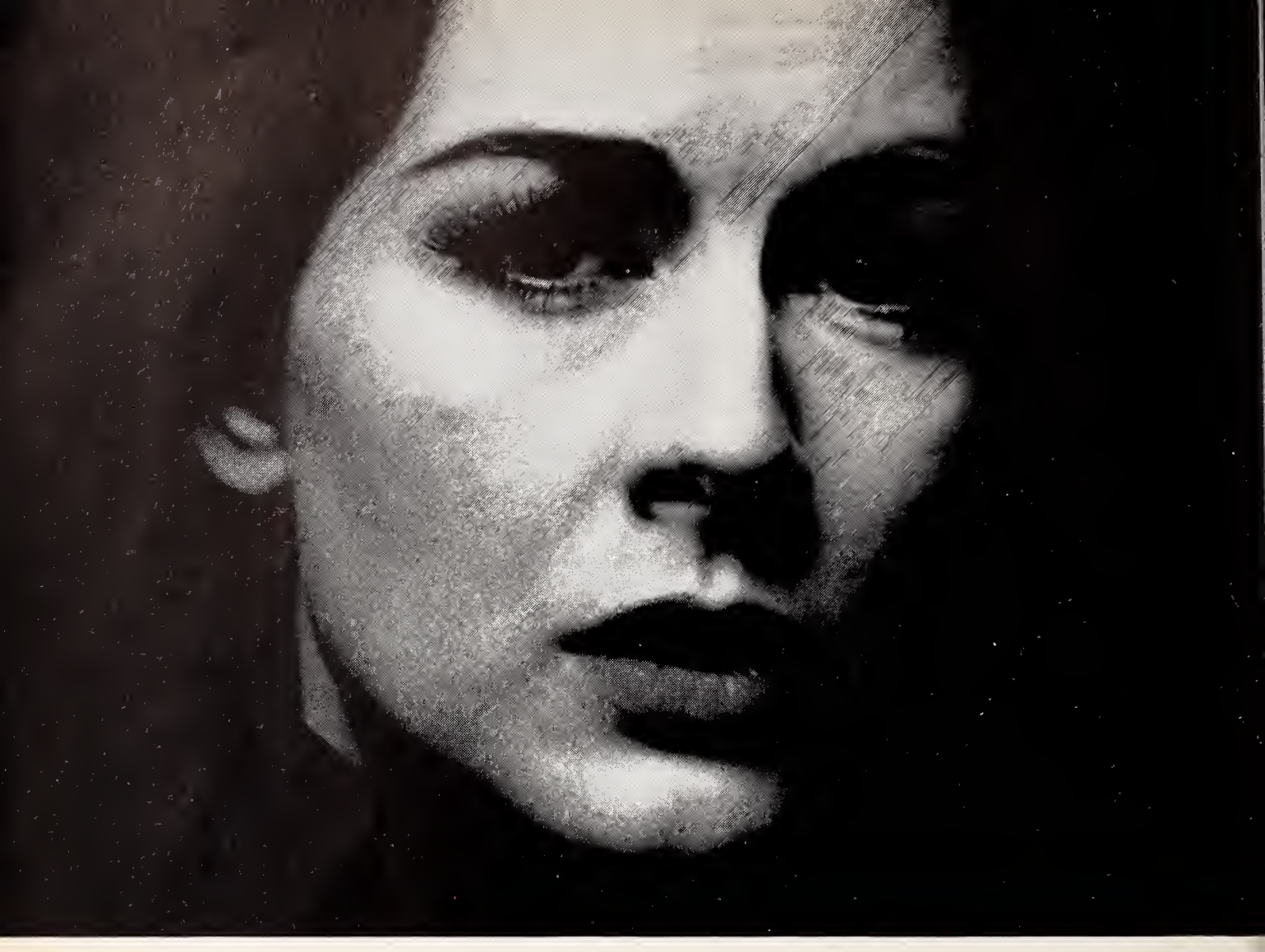
The authors feel that their complication rates of 0.36% for serious complications and 0.30% for fatalities are within range of acceptability for a major diagnostic procedure. Lumbar aortography, therefore, is a valuable diagnostic tool, and when performed with safeguards, which are within the reach of everyone, is free from undue risk.

These data are somewhat reassuring to those of us who may have been unduly impressed by widely publicized misfortunes relating to this procedure. A wealth of instructive material has been accumulated in this review of a most impressive amount of clinical experience and should be studied in detail by anyone contemplating the use of this technic.

Robert Hammerstrom M. D.
Minneapolis, Minnesota

Szilagyi, D. E., Smith, R. F., Macksood, A J., and Eyler, W R.: "Abdominal Aortography" Arch Surg 85:41, July 1962

Continued



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STROKES

A recent estimate of the number of living stroke victims in the United States is 1.8 milion, about 1 percent of the population. Several authorities have shown that early ambulation, encouragement of independent activity and regular, persistent physical therapy shorten hospitalization and lead to greater return of function. The Georgia Department of Public Health and the Georgia Heart Association have cooperated in developing a program to apply these concepts in practice.

The program was divided into three phases — education of the physician, rehabilitation of the patient and education of the public. The first phase was based on lectures and panel discussions for physicians on the various aspects of the stroke problem.

The second phase had to take into account a lack of facilities for large-scale physical therapy. Where possible, rehabilitation techniques were carried out at home by the patient's family under supervision of the family doctor and local public health nurse.

The patients selected were under 70 years old, free from other major diseases and not more than two years convalescent.

After a complete physical examination to determine the range of motion of the affected limbs, the patient was placed in either the treatment or control group. The controls were returned to the medical clinic for the usual supportive care and assessed once a year. Patients in the treatment group were appraised in the stroke clinic and a program was set up for their home care.

Since it would be disastrous to create a public demand for a service not yet available, the education of the public on the newer developments of treatment was postponed until the education of the physicians and public health nurses was in progress. The difficulty lay not in stimulating interest but rather in restraining enthusiasm until the program was ready for promotion.

The program has already changed the attitude of physicians and the public toward the chances of successful rehabilitation in stroke cases. As a result, many patients who would otherwise be lying helpless in back rooms or nursing homes are now being put back on their feet.

Courtesy of World Wide Abstracts
Excerpta Medica Foundation
New York, New York

Barrow, J. G., Am J Pub Health 52/4:627

SKIN COOLING FOR RADIOTHERAPY

It was found that cooling the skin prior to irradiation reduced the severity of acute radiodermatitis in 60% of 100 patients receiving radiotherapy (200 kv.) for neoplastic disease through 4 pelvic ports; healing of the skin was more rapid, and late changes—fibrosis and telangiectasia—were decreased. Two ports on each patient were cooled to approximately 10° C. (50° F.), while 2 uncooled served as a control. The cooling device was a hollow aluminum sandwich with 2 tubular connectors through which water at 0° C. (32° F.) was circulated. The effect is believed to be related to tissue oxygen concentration at the time of irradiation.

Courtesy of References and Reviews
Journal of the American Medical Association

Magalloti, M. F., Hummon, I. F., Garces, R. M., and Naumoff, N. S. R. Radiology 79:435 Sept. 1962

DELERIUM TREMENS

The authors studied fifty consecutive admissions of alcoholic patients over a three month period to the psychiatric service of a state hospital. Twelve of the patients were hallucinating at the time of admission. Routine basic treatment consisted of administration of Promazine, Vitamin B complex, fluids and diet. The patients were divided into two groups by alternate selection. The first group received fifty per cent aqueous magnesium sulfate. The second group received a placebo injection of normal saline.

The authors conclude that parenterally administered magnesium sulfate is of value in managing the severe acute brain syndrome associated with acute alcholism. It is especially valuable in preventing delerium tremens in patients not suffering from hallucinations when admitted. Seventy-seven per cent of the admission delerium-free patients remained free of hallucinations on magnesium sulfate while only thirty-seven per cent of saline treated control group remained hallucination-free. In the group as a whole nineteen of the twenty-five on magnesium had a successful response as compared to twelve in the placebo group.

The rationale of the therapy is based on the knowledge that alcoholics seem prone to develop deficiencies such as depressed serum magnesium, low red cell magnesium concentration and positive magnesium balance. Also there is a strong resemblance of the syndrome associated with magnesium deficiency and delerium tremens.

Courtesy Medical Abstract Service
Berwyn, Illinois

Beroz, E. Conran, P., and Blanchard, R. W. Am J Psychiat 118:1042, May 1962.

TUMOR ANGIOGRAPHY

The authors have had a long experience with angiography in the diagnosis of peripheral tumors and have performed angiographic studies on amputated extremities from patients with fibrosarcoma, osteogenic sarcoma, and chondrosarcoma. Angiography gives valuable information on the presence of certain tumors, their size, and malignancy. It frequently indicates the appropriate biopsy site and suggests how surgery should be planned. Malignant tumors of the soft parts are usually more abundantly vascularized than the surrounding tissues, the vascularization paralleling the degree of malignancy. Most osteogenic sarcomas contain poorly differentiated, markedly vascular areas which can be demonstrated angiographically. In the chondrosarcoma, as in the fibrosarcoma, all stages of vascularity are found, from the benign tumor, which is almost devoid of vessels, to the highly vascular malignant sarcoma. In chondromatous tumors of moderate or high malignancy the vessels may have a scalloped or wavy appearance. The giant-cell tumor, osteoid osteoma, and some glomus tumors show characteristic angiographic findings. Metastatic carcinoma may display hypervascularity, and inflammatory processes may have a rich vascular supply.

Courtesy of References and Reviews
Journal of the American Medical Association

Lagergren, C. and Lindblom, A. Radiology 79:371 Sept. 1962

Continued

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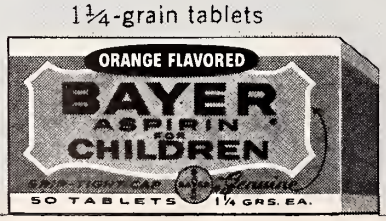
For example, aspirin. You probably recommend it more than any other drug, as an analgesic, as an antipyretic, as an aid to sleep when restlessness is caused by minor discomforts. Certainly aspirin is the most versatile and one of the most effective drugs in the arsenal of medicine.

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VILLOUS TUMORS

A case history of a patient with severe electrolyte disturbance resulting from the profuse mucoid discharge of a villous adenocarcinoma of the rectum is described in detail. In addition, the authors review the literature and summarize twenty other reported cases.

The selected cases had documented electrolyte imbalances, most commonly hyponatremia, hypokalemia, hypochloremia, dehydration, and varying combinations of these abnormalties. The etiology was a diarrheal discharge of mucus containing high concentrations of these electrolytes. Most complained of weakness and easy fatigue and four were actually in shock when first seen. Volumes of mucus passed rectally were as high as 3000 ml. a day.

A patient presenting with such a clinical picture should be suspected of having a villous tumor. Preoperative restoration of a normal fluid and electrolyte environment is essential but may actually be extremely difficult because of the continuing profuse loss. A radical cancer operation should be performed because of the high incidence of malignant transformation in these lesions.

The above review presents another interesting feature which may make this lesion exceptional. The bizarre patterns of growth as well as the potential for physiological derangement must be recognized prior to the institution of definitive surgical therapy in order to accomplish acceptable results.

Robert N. Hammerstrom, M. D.
Minneapolis, Minn.

Shamblin, J. R., Huff, J. F., Waugh, J. M., and Moertel, C. G. "Villous Adenocarcinoma of the Colon with Pronounced Electrolyte Disturbance" Ann Surg 156:318, Aug. 1962.

VILLOUS TUMORS

It is often quite difficult to determine whether a villous papilloma of the colon or rectum is benign or malignant, and thus, how best to manage it. The authors proposed to find out whether one can be sure of the benign or malignant nature of an individual tumor on histological grounds, and whether local excision will effect a cure for the benign ones.

The Hertzler Clinic has treated forty-one patients with villous tumors in the past twenty-six years. Of a total of 330 cases of intestinal carcinoma, 10.3% were thought to arise from villous tumors.

In the series described 23 involved the rectum, 12 the rectosigmoid, 4 the sigmoid and 2 the descending colon. Six tumors were clinically considered malignant. The size ranged from 1.3 centimeters to 12 centimeters in diameter.

In nine villous tumors invasive carcinoma was present. Biopsy had missed the malignant nature in all but one, the true nature being recognized during or after removal of the whole tumor.

The malignant lesions behaved like other intestinal carcinomas, and when possible, were radically treated as such. Three of the benign tumors were so large and so low as to require combined abdominal perineal resection. Four benign sigmoid tumors were treated by anterior resection. In four others biopsy through a colotomy revealed a benign tumor, and a full-thickness excision was performed. All the other benign lesions were excised locally through the anus.

Three benign tumors recurred 7 to 18 years after local removal. Histologically, the recurrences were also benign. Five of the nine patients with malignant lesions were alive 1 to 7 years after operation, at the time of the review.

The authors make the following instructive observations: Carcinoma-in-situ, atypia, or focal intramucosal carcinoma are not indications for radical cancer surgery. Fractional biopsies in villous tumors are useless and deceptive. The one kind of reliable biopsy is removal of the entire tumor.

Though villous adenomas are often categorized in the same family of neoplasm as ordinary rectal polyps they do merit particular respect because of their occasionally very distinctive features and potential for occult malignancy. The main lesson to be stressed again is the necessity for complete histological review of the entire lesion before regarding it as benign. Here is an instance where fulguration, or even fractional biopsy and fulguration is to be condemned.

Robert N. Hammerstrom, M. D.
Minneapolis, Minnesota

Dreese, W. C., Gradinger, B. C., Hellwig, C. A., Welch, J. W., and McCusker, E. N. "Villous Tumors of the Rectum and Sigmoid" S G & O 115:182, August, 1962.

ANTICOAGULANTS IN MYOCARDIAL INFARCTION

The author disagrees with the conclusion drawn by Hilden et al. that anticoagulant treatment is not indicated in acute myocardial infarction. He pointed out that the reliability of the data and the validity of the conclusion were impaired by (1) the poor method of choosing patients who received anticoagulants during the 4-year unsatisfactorily controlled study in 800 cases of acute myocardial infarction seen in 4 medical departments of 2 municipal hospitals in Copenhagen; (2) inadequate emphasis on the striking reduction in treated patients of proven pulmonary infarction, embolism, or thrombosis, of parietal thrombosis of the heart, and of the number of deaths from thromboembolism; (3) lack of precision in stating the diagnostic criteria; (4) the large number of cases excluded from the study (604 out of 1,404); (5) the relatively high over-all mortality (42% of 1,404); and (6) the large number of cases undiagnosed until more than 72 hours after onset.

During the past 15 years there has been a widespread increase in the use of anticoagulants in myocardial infarction. Acceptance of such therapy has been based on about 100 reports of controlled studies that consistently confirmed its value, in contrast to less than a half-dozen reports involving small or uncontrolled series of cases that disclaimed any benefit. In view of this background, it is remarkable that the report by Hilden et al. from Copenhagen has revived all the latent opposition to use of anticoagulants for acute myocardial infarction and has led to discontinuance of such therapy in Denmark's government-controlled hospitals.

Courtesy of Abstracts
Farley Manning Associates
New York, New York

Friedberg, C.K. JAMA 180:307, Apr. 28, 1962

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> Kestler reports in controlled study: *Average time for restoring patients to full activity: with Soma, 11.5 days; without Soma, 41 days.* (*J.A.M.A. Vol. 172, No. 18, April 30, 1960.*)

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Book Reviews

BASIC ANXIETY, A NEW PSYCHO-BIOLOGICAL CONCEPT — Garre, Walter J. M.D. Philosophical Library, Inc. New York, 1962—123 pages, $5.00.

Dr. Garre in "Basic Anxiety" has built up a concept of human behavioral difficulties stemming from three infantile problems; first, the threat of violent death at the hands of the mother leading to sympathotonic-adrenergic over-responses; second, the fear of abandonment resulting in predominantly chlorinergic-vagotonic reactions; and, third, the fear that the mother will not protect the infant in danger with unspecified results. The diseases that follow the sympathetic overstimulation are hypertension and possibly polycythemia. The results of parasympathetic-vagotonic predominance are hyperactivity of the gastro-intestinal tract with peptic ulcers and colitis.

How far Garre allows this thinking to lead him can be illustrated by two quotations from "Basic Anxiety". "Let us look at poliomyelitis. The specific etiology of this disease is well recognized . . . It seems that particularly active and industriously intelligent individuals are particularly vulnerable. Stories are almost commonplace of women afflicted with paralyzing sequelae to polio getting pregnant even while confined to an iron lung and running the household from there. Commonplace, too, are the impressive efforts at self-support of most who have been badly handicapped by this disease. The question now arises, what is the affinity of these specific viruses to such active people? And I answer that these individuals, although outwardly functioning on such a high level, nevertheless basically, and for emotional reasons of which they themselves are unaware, push themselves and their nervous systems to the point of exhaustion and thus increase their cellular vulnerability and so become easy victims of the ever-present viruses." "I would like to present a theory, far-fetched as it may seem, of the etiology of cancerous conditions. The fact is well accepted that cancerous growth resembles wildly unrestrained growth of immature cell forms that do not respect any delineations. I submit that, in individuals who completely block all expressions of anxiety and whose tensions therefore lack an outlet, the cells may take it upon themselves to break out of this impossible inhibition. The result is disastrous growth. The role of viruses in such a scheme is open to question, but it stands to reason that viruses, which are always present in one form or another, may adapt themselves so that they act almost like organic catalysts and are thereby instrumental in bringing about such changes."

These ideas and their presentation are quite foreign to the physician trained to study disease illuminated by basic sciences such as pathology, physiology, microbiology, and chemistry. From the point of view of such a physician this book cannot be read with understanding. He will object to the lack of bibliography, the absence of an index, the author's failure to document any of his ingenious schemes of causations by reference to previous work other than in vague generalities, his failure to present even one case study. The writing suggests a paper in which history, method, and results have been lost and all that remains is discussion. "Basic Anxiety" is not recommended for physicians.

Reuben Berman M.D.
Minneapolis, Minnesota

DIAGNOSTIC TESTS IN INFANTS AND CHILDREN, 2nd Edition. Hans Behrendt, M.D., Lea and Febiger, Philadelphia, 1962.

This is a useful book, a type that is to be encouraged so that a future edition can be improved. The author "endeavors to set forth the principles, techniques, and interpretations of laboratory and function tests used in infants and children and to meet the diversified demands of pediatric training, practice and the clinical laboratory." He has done so well that the book should be popular; but he could do better. The containing details of laboratory procedure could be printed in smaller type since the greatest value of the book is in the discussions of the tests. Since the technical aspects of laboratory procedures are rapidly changing from macro to semimicro to micro, these detailed laboratory procedures may rapidly become less valuable and should accordingly relinquish space for more valuable material to be added. This is a minor annoyance compared to the *exclusion* of several areas of diagnostic tests. Absent and missed are the fields of electroencephalography, psychologic testing and pulmonary function. Nevertheless, the well presented and otherwise compulsive information will reconcile most readers to these few shortcomings.

Warren J. Warwick, M. D.
Minneapolis, Minn.



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Special Articles

1962 Income Tax Guide for Physicians

JOHN S. HIBBS, B.B.A., LL.B*
Minneapolis, Minnesota

The purpose of this article is to provide you with a clearer understanding of your rights and obligations under the 1962 federal and Minnesota income tax laws. More specifically, it is intended to familiarize you, the Minnesota physician, with the most important tax-saving opportunities which might be available to you, and to discuss some of the most common tax problems which arise in the conduct of a medical practice. The author points out, however, that this article should not be considered an adequate substitute for the services of professional tax counsel. To begin with, this article is written to inform, not to advise, as the tax laws are subject to uncertain application with respect to certain matters discussed herein. Moreover, the application of any law will, of course, depend upon the particular facts involved. It is assumed for purposes of this article that you file your income tax returns on the calendar-year basis and that you have been a resident of Minnesota for the full year. Unless the contrary is stated or otherwise indicated, statements herein are applicable for both federal and Minnesota income tax purposes.

As most of you are by now aware, the President signed the Self-Employed Individuals Tax Retirement Act of 1962, more widely known as H.R. 10, on October 10, 1962. H.R. 10 will not be discussed in this article, as a comprehensive article examining the history and application of the new law will be published in an excellent article in a later issue of MINNESOTA MEDICINE.

* Member of the Hennepin County, Minnesota State and American Bar Associations and associated with Dorsey, Owen, Marquart, Windhorst & West.

You can save money, perhaps a good deal of money, by spending an extra hour or so on your 1962 federal and Minnesota income tax returns and by taking advantage of numerous tax-saving opportunities available to you.

Within the foregoing frame of reference, this article will achieve its purpose if it provides you with a clearer understanding of your rights and obligations under the 1962 federal and Minnesota income tax laws.

PROFESSIONAL INCOME AND EXPENSE

Accounting Method and Professional Income

Business or professional income includes such items as wages, salaries, bonuses, commissions and fees; profit from a business or profession; your share of partnership profits; and honorariums received for making a speech or writing an article.

When a physician files his first income tax return after he has begun private practice he may elect to report his income on either a cash or an accrual basis. Under the cash-basis method, income is taxable only when it is received, and expenses are not deductible until paid. Under the accrual-basis method, income is taxable in the year earned, even if uncollected, and expenses are deductible in the year incurred, even if unpaid. Once an accounting method has been chosen, it may not be changed without the permission of the Commissioner of Internal Revenue.

Professional people usually prefer to use the cash-basis method and to pay tax on collections rather than billings, as professional fees are not always promptly paid and collections are frequently less than billings. If the accrual-basis method is used, bookkeeping adjustments are necessary from time to time to offset accounts receivable which have been included in income but which have proven to be uncollectible.

An advantage of the cash-basis method to the physician is that it provides an element of control over net income. If the year promises to be one of unusually high income, he may limit his income to some extent by postponing some of his billings to the following year, paying all bills for expenses before the end of this year, and buying and paying for professional supplies to be consumed the following year.

If you are a cash-basis taxpayer, you will report only fees actually received. *Fees paid by check are the same as those paid in cash and cannot be deferred as income by holding for deposit until the following year.* If the check is returned by the bank unpaid, the amount of the check is deducted from your income until such time as it may be paid if previously included in your income.

Occasionally you may accept a note, merchandise, or services in payment of a bill. These are includible in your income at fair market value. If a note has been accepted from a patient and its value included in income, you may deduct the amount previously reported in income as a bad debt loss if the note should become worthless.

Gifts that are given to you by a patient in gratitude for or in recognition of medical services which you have actually rendered are taxable income to you.

Professional Expenses

Business expenses are the normal current costs of operating a business or professional practice. They are deductible from gross income if they are ordinary and necessary expenses directly connected with or related to a business or profession. The term "ordinary" as used in this context refers to an expense which is a common and accepted occurrence within the business or profession. "Necessary" expenses are those expenditures which are appropriate and helpful, even though not absolutely essential. *Expenditures for lobbying or the promoting or defeat of legislation, contributions for political campaigns, and payments which frustrate sharply defined public policy cannot be deducted as ordinary and necessary business expenses for the year 1962.*

Under a new law applicable to taxable years beginning after December 31, 1962, a deduction will be allowed for ordinary and necessary expenses (including, but not limited to, traveling expenses and the cost of preparing testimony) paid or incurred in carrying on any trade or business (1) in direct connection with your appearances before, submission of statements to, or sending communications to, the committees, or individual members of Congress or of any legislative body of a State, or a political subdivision of the United States or any State with respect to legislation or proposed legislation of direct interest to you, or (2) in direct connection with communication of information between you and an organization of which you are a member with respect to legislation or proposed legislation of

direct interest to you and to such organization. No deduction will be allowed under the new law for any amount paid or incurred (1) for participation or intervention in any political campaign on behalf of any candidate for public office, or (2) in connection with any attempt to influence the general public, or segments thereof, with respect to legislative matters, elections, or referendums.

Private Practice

If you are a physician in private practice, you are, for income tax purposes, considered to be the proprietor of a business and, as such, are entitled to deduct from your gross income all the ordinary and necessary expenses of your professional services. These deductions, if claimed, must be supported by itemized records and substantiating evidence, since you have the burden of proving their validity. Living costs and personal expenses may not be deducted as business expenses. If an expense is both business and nonbusiness or personal, only the portion attributable to your practice may be deducted as a business expense. The following is a list of most of the usual business expenses incurred by doctors. To the extent that these expenses are ordinary and necessary in conducting a professional practice, they are deductible on federal Schedule C and in arriving at your net income from your profession which is inserted on page 2 of your Minnesota return:

Accounting.

Fees paid for installing and maintaining an accounting system, bookkeeping, auditing and preparation of tax returns.

Automobile.

If you use an automobile in making professional calls, you may deduct the expenses of its operation, including gasoline, oil, greasing, washing and polishing, antifreeze, garage rent, license fees, depreciation, insurance premiums, uncompensated casualty and collision damages (if not due to your willful act), interest on installment purchase, repairs, parking fees, towing charges, bridge and highway tolls. You are not, however, entitled to a business expense deduction for such expenses as are attributable to (1) driving to the office, to a hospital, or to a patient's home directly from your home in the morning, or (2) returning home at the end of the day. Therefore, even though you might own an automobile which is used solely in connection with your medical practice, it would be improper to claim a deduction for all of the expenses attributable to its operation.

Bad Debts.

If you are on the cash basis, then, as noted above, uncollectible debts are never included in your income. If you are on an accrual basis, however, bad debts may be deducted either as a direct charge-off when they occur, or by setting up a reserve for anticipated bad debts and deducting reasonable additions to that reserve. Thus, the bad debt reserve method permits a deduction even before the debt has become bad. If you write off and deduct actual bad debts, you must deduct them in the year the debts become fully worthless. But there is an option covering partially worthless bad debts. Instead of waiting for the debt to become entirely bad, you can deduct the worthless portion in any year in which you write it off, so long as the debt is not completely worthless. This option permits you to choose the year for deducting partially worthless business bad debts.

Bank Charges.

Service charges for maintaining professional bank account.

Casualty Losses.

Loss by fire, flood, theft, sudden deterioration, or other casualty of property used in professional practice, to the extent not compensated by insurance.

Collection Fees.

Fees paid to collection agencies and attorneys for collecting delinquent professional accounts.

Conventions.

Costs incurred in attending conventions directly related to professional practice such as registration fees, meals and lodging, tips, baggage charges, and transportation.

Damages.

Payment of damage claims or judgments, including litigation expenses, arising out of professional activities.

Depreciation.

Annual allowance to recover cost of professional property having a useful life of more than one year and established in accordance with a predetermined, reasonably consistent plan. The aggregate of the amounts allowable each year plus the salvage value remaining, if any, will at the end of the useful life of the property equal its cost. Examples of depreciable property include that portion of an automobile devoted to professional practice, X-ray equipment, office furniture and fixtures, and surgical instruments. See detailed discussion below.

Dues.

Physicians may deduct expenses of membership in local, state or national medical professional organizations. Also deductible is a proportionate part of your membership expenses in belonging to clubs, service organizations, and chambers of commerce, to the extent that your membership is for the purpose of increasing your professional income. This does not include expenses of your wife in an auxiliary society, since her membership is not considered to be for the direct purpose of enhancing your professional income.

Education.

Expenses incurred in attending "refresher" courses of short duration which are intended to keep you, as a practicing physician, abreast of current developments in your area of competence and which do not offer academic credit or constitute specialty training are deductible. See detailed discussion below.

Entertainment.

Costs incurred as a means of enhancing your medical practice, such as the entertainment of doctors who refer patients, and similar expenditures to attract and retain patients. Records should be maintained showing the dates, places, and events, the names of guests, the amounts expended and the business benefit derived or reasonably expected to be derived. See detailed discussion below.

Fees.

Fees for narcotics and annual doctor's licenses are deductible.

Flowers.

Cost of flowers for the reception room, as well as flowers for patients and funeral wreaths, providing such costs are incurred for a business reason and not in fulfillment of a social or personal obligation.

Gifts.

Gifts to employees, hospital attendants, nurses, and patients for business rather than personal reasons. You would do well to be prepared to show by detailed records the names of recipients, the amounts expended, and the likelihood of business benefit.

Insurance.

Premiums on policies written in connection with professional practice, such as professional liability, public liability, embezzlement, and insurance on professional property are deductible. But this does not include premiums on disability or life insurance policies.

Interest.

Interest on indebtedness arising out of professional practice, such as the purchase of equipment or a building used for an office is allowed as a deduction.

Continued

Laundry.
Cost of laundering or renting towels, surgical gowns and linens used in professional practice.

Leasehold Improvements.
Cost of improving or remodeling your office may be amortized over the useful life of the improvements or the remaining period of the lease, whichever is shorter.

Legal.
You may deduct expenses in connection with earning professional income, such as collecting delinquent accounts or defending a professional liability suit. Costs incurred in connection with an unsuccessful defense of a criminal or license revocation proceeding are not deductible. Also deductible are legal fees paid in connection with tax advice or with the preparation of income tax returns, but not legal fees paid in connection with the preparation of wills or trust agreements.

Magazines and Books.
Cost of professional journals, and magazines and newspapers for the reception room; also the cost of books that have only temporary value (generally a year or less). Does not include reference books having a more or less permanent value which should be depreciated, as with other capital assets, over their useful life.

Maintenance.
Costs such as electricity, gas, heating fuel, water, repairs, cleaning, painting and decorating.

Medical Supplies.
Drugs, chemicals, dressings, vaccines, and items such as clinical thermometers which have a normal life of not more than one year.

Moving.
Costs incurred in transferring a professional practice to a new office location.

Office Supplies.
Stationery, printed forms, postage, pens, pencils, and similar items.

Rent.
Paid in leasing equipment or office space. If your residence is also used as a bonafide office, the portion of the rental reasonably attributable to office space is deductible.

Repairs.
Costs incidental to keeping professional property in an ordinary, efficient operating condition, such as fixing broken furniture and equipment and restoring an air conditioning unit to operation.

Residence.
Reasonable proration of rental, taxes, mortgage interest, utilities, janitor expenses, various type of insurance, and repairs if an office or a bona-fide second office is located in your residence.

Salaries.
Paid to nurses, technicians, secretaries, and assistants, including employer's payroll taxes. Also proportionate part of wages paid to servant who cleans both office and residence. Includes bona-fide wages paid to a dependent child for services as chauffeur, receptionist, and so forth, but the cost of meals and lodging for the child are not deductible.

Taxes.
Personal property and real estate taxes levied on property used in professional practice; occupation taxes or taxes on gross receipts from professional practice; sales and use taxes on purchases of supplies and equipment; and employer's payroll taxes. Minnesota and federal gasoline taxes and federal excise taxes imposed upon you and paid in connection with your professional practice are deuctible as part of the cost of the item.

Telephone.
Expenses incurred for office telephone and professional telephone calls made from residence or elsewhere; also telephone answering service.

Travel.
Expenses in attending professional meetings and visiting patients, such as transportation, baggage charges, and the cost of meals if "away from home" (this normally requires an overnight trip). Costs of personal or vacation travel are not deductible, even though an incidental business purpose may be served. Travel expenses of your wife in accompanying you to professional meetings are not deductible, even though she may perform some incidental useful services. See detailed discussion below.

Uniforms.
If not suitable for other than professional usage and if necessary for reasons of custom or sanitation.

Salaried Employee

If you are working for someone else on a salary basis, you may deduct the ordinary and necessary expenses connected with your employment. However, unlike the doctor in private practice, only certain of your expenses may be deducted from your gross income; all other expenses connected with your employment can be deducted by itemizing them as nonbusiness deductions on page 2 of your federal return and on page 2 of your Minnesota return as "Other Deductions."

The items which you, as a salaried physician, can deduct directly from what you receive from your employer are: (1) expenses of travel, meals and lodging while away from home in connection with your performance of services as an employee, (2) transportation expenses in connection with your employment, other than commuting expenses, and (3) expenses paid or incurred in connection with your performance of services under a reimbursement or expense allowance arrangement with your employer. Reimbursed expenses must be included in your gross income, and your actual expenses may be deducted therefrom. As a rule, if the reimbursements exceeded your actual expenses, you need merely report this excess as income and need not show a breakdown of your actual expenses. If your employer's reimbursements equalled your expenses, neither should be reported.

Expenses paid or incurred by you for certain other items related to your employment cannot be deducted from your gross income but must be claimed, as indicated above, as nonbusiness deductions. These deductions include convention expenses, depreciation of your own equipment which you use in your employment, dues, costs of education, entertainment expenses, narcotics fees and annual licenses, interest, insurance, legal fees, magazines and books, medical supplies, residence, telephone, and uniforms. For more detail on these items, see the discussions under each of the appropriate headings above. However, the deductibility of the portion of the expenses of maintaining your residence which are attributable to an office in your home has recently been severely restricted. The Internal Revenue Service recently issued guidelines for determining the amount of deductions which an *employee* may be entitled to if he uses his personal residence for business purposes. To receive any deduction at all for business use of your residence you, as an employee, must show that such business use was (1) required as a condition of your employment and (2) regular, as opposed to voluntary, occasional or incidental. You must also maintain adequate records of such items as rent, light, mortgage interest and taxes and you must be able to substantiate a claimed deduction for depreciation on the residence.

DEPRECIATION

The cost of medical equipment, office furniture, buildings, and other property with a useful life of more than one year may not be deducted in full in the year of purchase as an expense.

However, if property such as office furniture has a useful life of limited duration which can be determined or estimated, a pro rata portion of the cost or other basis may be deducted each year over the estimated useful life of the asset to you. The cost of an asset which does not have a limited useful life, such as radium, land or goodwill, may not be recovered by depreciation.

A reasonable allowance may be deducted each year, as depreciation, for the exhaustion, wear and tear, and obsolescence of depreciable property used in business, professional practice, or held for the production of income. In this way, the cost or other basis of depreciable property, less the salvage value, may be recovered over the period of its estimated useful life. If the depreciable property qualifies for the 7% investment credit, discussed below, the cost or other basis of the property must also be reduced by the amount of such credit.

Depreciation Methods

Any reasonable method which is consistently applied may be used in computing depreciation, but no asset may be depreciated below a reasonable salvage value under any method. The four methods of computing depreciation most widely used are (1) the straight-line method, (2) the 150% declining-balance method, (3) the 200% declining-balance method, and (4) the sum-of-the-years'-digits methods.

Straight-line method.

Under the straight-line method, the cost or other basis of an asset less its estimated salvage value is deductible in equal annual amounts over the period of the estimated life of the asset to the taxpayer. The allowance for depreciation for the taxable year is determined under this method by dividing the cost or other basis of the property at the beginning of the taxable year, less salvage value, by the remaining useful life of the property at such time. Because the straight-line *rate* is important in determining maximum rates permissible under certain other methods of computing depreciation, the following formula can be used to compute the depreciation allowance for the taxable year using the straight-line method:

Annual depreciation = (Cost or other basis — salvage) x (Useful life in years/100).

If, therefore, an asset has an estimated useful life of 10 years, the applicable straight-line rate would be 10%.

150% declining-balance method.

This method is of somewhat limited availability. It may be employed only with respect to new property acquired prior to 1954 or new and used property acquired after 1953, and only if permission to use this method has been granted by the Commissioner of Internal Revenue, or the method was elected by a new taxable entity in an initial return or was elected in the first return filed in which depreciation was sustained. Under this method, a rate equal to one-and-one-half times the applicable straight-line rate is applied each year to the undepreciated cost or other basis of the asset and is computed without regard to salvage value. Thus,

Annual depreciation = Undepreciated cost or other basis x (Straight-line rate x 1.5)

The rate determined under this method will be applied each year until the undepreciated cost or other basis of the asset is reduced to salvage value.

With respect to new tangible property with a useful life to you of three years or more, you generally may use either of the two methods described above, or any of the following:

200% declining-balance method.

Under this method, a rate equal to twice the applicable straight-line rate is applied to the undepreciated cost or other basis of an asset and is computed without regard to salvage value. Moreover, the depreciation must stop when the remaining undepreciated balance is reduced to salvage value. The following formula may be used to compute annual depreciation under this method:

Annual depreciation = Undepreciated cost or other basis x (Straight-line rate x 2)

Sum-of-the-years'-digits method. Under this method of computing depreciation, annual deductions for depreciation are computed by applying changing fractions to the cost or other basis of the asset, reduced by estimated salvage. The numerator of the fraction changes each year to a number which corresponds to the remaining useful life of the property, and the denominator, which remains constant, is the sum of all the years' digits corresponding to the estimated useful life of the asset. Thus, if an X-ray machine has a 10-year useful life, the annual deduction for depreciation under this method would be computed as follows:

First year's depreciation = (Cost or other basis — salvage) x 10/55

Second year's depreciation = (Cost or other basis — salvage) x 9/55

Third year's depreciation = (Cost or other basis — salvage) x 8/55, etc.

The deduction for depreciation may also be based upon any other method, consistently employed, which does not produce a larger aggregate depreciation during the first two-thirds of the asset's useful life than the 200% declining-balance method.

20% first-year depreciation.

A flat 20% of the cost of new or used assets (other than buildings) purchased after December 31, 1957, with an estimated useful life of six years or more can be deducted in the year of purchase regardless of how long the asset was held during the year. This special deduction is available on only $10,000 of annual property purchases for single taxpayers or a married taxpayer filing a separate return, or $20,000 for married taxpayers filing a joint return. In addition to 20% first-year depreciation, the remaining cost of an asset may be depreciated by means of any of the other methods for which the asset qualifies. When using this method of depreciation, you must show as a separate item the additional 20% first-year depreciation claimed with respect to each asset selected.

To illustrate the foregoing, suppose that on December 31, 1961, you purchased a new X-ray machine for $10,000 with an estimated useful life of 10 years and with an estimated salvage value of $1,000. Since the machine is new and was purchased subsequent to 1954, the 150% declining-balance method of computing depreciation will not be available unless permission to use this method has been granted by the Commissioner of Internal Revenue. Moreover, since the X-ray machine was purchased prior to January 1, 1962, the machine will not qualify as a "qualified investment" for purposes of the 7% investment credit discussed below. The following sets forth the amount of depreciation which may be deducted for the year 1962 under each of the methods discussed above assuming that you elect to take the 20% first-year depreciation:

Continued

20% first-year depreciation:
1962 depreciation = Cost or other basis x 20%
1962 depreciation = $10,000 x 20%
1962 depreciation = $2,000,
PLUS
Straight-line method:
1962 depreciation = (Cost or other basis — salvage) x (Useful life in years/100)
1962 depreciation = ($10,000 — 2,000 — 1,000) x (10/100)
1962 depreciation = $7,000 x 10%
1962 depreciation = $700,
OR
150% declining-balance method (if permission has been granted):
1962 depreciation = Unrecovered cost or other basis x (Straight-line rate x 1.5)
1962 depreciation = (10,000 — 2,000) x (10% x 1.5)
1962 depreciation = $8,000 x 15%
1962 depreciation = $1,200,
OR
200% declining-balance method:
1962 depreciation = Unrecovered cost or other basis x (Straight-line rate x 2)
1962 depreciation = ($10,000 — 2,000) x (10% x 2)
1962 depreciation = ($8,000 x 20%)
1962 depreciation = $1,600,

OR
Sum-of-the-years'-digits method:
1962 depreciation — (Cost or other basis — salvage x (1962 digit/sum of years' digits)
1962 depreciation = ($10,000 — 2,000 — 1,000) x (10/55)
1962 depreciation = $7,000 x 10/55
1962 depreciation = $1,272.73.

If you are presently employing one method of computing depreciation then, with one exception, you may not change to any other method without securing the permission of the Commissioner of Internal Revenue. For this purpose, any change in the percentage of the current straight-line rate under the declining-balance method, as for example, from 200% of the straight-line rate to any other percentage of the straight-line rate, will constitute a change in method of computing depreciation and will require the consent of the Commissioner. You may, however, change from the declining-balance method to the straight-line method without first securing the Commissioner's permission if you attach a detailed statement to your return. The change in method must relate to the entire taxable year in which the change is made and be used for all subsequent years unless, with the consent of the Commissioner, another change is permitted.

NEW DEPRECIATION GUIDELINES AND RULES

Generally

On July 11, 1962, the Treasury Department made public Revenue Procedure 62-21 (later modified by Publication No. 457), which provides basic reforms in the guideline lives for depreciation and in the administration of depreciation for income tax purposes. It sets forth simpler standards and more objective rules designed to facilitate adoption of more rapid equipment replacement practices. It, however, does not supersede existing, outstanding arrangements or established procedures for those who wish to continue to use them. A central objective of the new Procedure is to facilitate the adoption of depreciable lives even shorter than those set forth in the guidelines, or shorter than those currently in use, provided only that certain standards are met and that subsequent replacement practices are reasonably consistent with the tax lives claimed.

The Procedure may be used in the preparation of any tax return due after July 11, 1962, and may, therefore, be used in the preparation of your 1962 federal tax returns. The new guideline lives and new administrative procedures are applicable to all depreciable property, including existing assets as well as new acquisitions. Because the Procedure does constitute a basic reform in the standards and procedures used for the determination of depreciation for tax purposes, it is quite complex and is not even readily understood by many of those having a basic familiarity with existing depreciation standards and procedures. Accordingly, the basic principles and rules for applying the Procedure will merely be summarized here; you should not attempt to apply the Procedure without the advice of competent tax counsel, who can advise you as to the proper application of the Procedure to your specific depreciation practices.

Basic Principles

Guideline lives based on broad asset classes.

The new, shorter guideline lives (they are, on the average, 30 to 40% shorter than those previously suggested for use by taxpayers) apply to about 75 broad classes of assets, rather than to explicitly detailed items of depreciable property. In most cases, a single industry guideline class will cover all the production machinery and equipment typically used in a particular industry. Certain assets in general used by all businesses are covered by guideline classes which cut across industry lines. For most taxpayers, three or four guidelines will encompass all of their depreciable property. In the case of physicians, however, only three guidelines will be applicable: (1) for office furniture, fixtures and equipment (listed under "Group One" and applicable to business in general), 10 years; (2) for automobiles (also listed under "Group One"), 3 years; and (3) for other assets used in the providing of services, such as the services offered by physicians (listed under "Group Two"), 10 years.

New guidelines immediately available to all taxpayers.

Any taxpayer who wishes to use the new guideline lives, or a life longer than the guidelines, may do so initially, as a matter of right and without question by the Internal Revenue Service for a period of 3 years. Use of guidelines will continue to be accepted thereafter unless there are clear indications that your replacement practices do not conform with the depreciation claimed and are not even showing a trend in that direction.

Use of lives shorter than guidelines permitted.

The guideline lives will not be treated as minimums. Shorter lives which have already been established or which may in the future be justified as reflecting your existing or intended replacement practice will be permitted. Thus, the new Procedure will not disturb the continued use of below-guideline lives which you have already demonstrated to be realistic. Moreover, the Procedure sets forth standards under which taxpayers, including those previously using lives below the guidelines, may establish still shorter tax lives concurrent with the adoption of more progressive replacement and modernization practices.

Objective standards applied.

An objective standard, the reserve ratio, is provided which you may use, in addition to existing standards and procedures, to justify your use of a below-guideline life or your right to shift to even more rapid depreciation schedules. The reserve ratio also gives you a continual means of demonstrating that the tax lives you are using correspond with your replacement pattern.

Reserve ratio test not exclusive.

You may use the reserve ratio test as a means of automatically justifying your right to follow whatever depreciation practices you are using. It, however, will be used by the Service only in conjunction with established standards as a basis for imposing longer lives than those you consider appropriate. Where the reserve ratio test is not met, you will still be allowed, as at present, to demonstrate the reasonableness of the depreciation claimed on the basis of all the pertinent facts and circumstances.

Reserve ratio test an over-all measure.

The reserve ratio test measures the relationship between tax lives and replacement experience on a comprehensive basis with the objective of achieving a reasonable over-all result. Its use will thus hopefully minimize preoccupation with determination of specific item lives, which can burden both taxpayers and the Internal Revenue Service without necessarily achieving meaningful improvement in the fairness or realism of depreciation allowances.

The reserve ratio test embodied in the Procedure differs significantly from the rough rules of thumb which have in the past sometimes been used. The appropriate ratios set forth vary according to the method of depreciation employed, the depreciable lives used and the rate of growth of your assets. While the reserve ratio test is considerably more sensibly designed than former tests, it is also a good deal more flexible. It takes into account the inevitable deviations from a theoretical norm by providing a range within which the reserve ratio may vary without signalling a possible need for adjustment of tax lives.

An important feature of the reserve ratio test is the latitude it allows you in the determination of your depreciable asset lives, provided certain standards are met. The margin of tolerance contained in the Procedure's Reserve Ratio Table encompasses rates of replacement as much as 20% slower than the tax life used, but only 10% faster. Accordingly, the reserve ratio test will more quickly indicate your right to faster depreciation writeoffs than the possibility that longer tax lives should be used.

Penalty rates will not be imposed.

Where your replacement practice proves to be substantially out of line with the depreciation claimed, adjustments will be called for. The Procedure provides tables which will indicate how much adjustment is appropriate. The lives will be lengthened to correspond to your actual replacement practices. "Penalty rates" which have in the past been used in an attempt to correct past errors over a brief span of time will no longer be imposed.

Use of new guideline classes not mandatory.

While conversion of your depreciation accounts to the new guideline classes will facilitate administration of depreciation, you will not be required to change your bookkeeping system in order to use the new Procedure. If you wish to retain item accounts and also wish to use the new Procedure, you will be required merely to identify those items according to the guideline classes. If you wish to use the new Procedure and also wish to retain multiple-asset accounts which do not correspond to the guideline classes, you will need to furnish the Service with sufficient information to permit comparison of the lives used with those set forth in the guideline classes. You may, if you wish, simply choose to have your depreciation claims examined under procedures used in the past.

Rules for Application

The fundamental concept underlying the new Procedure apparently is that the depreciation claimed will not be disturbed if your retirement and replacement practices are consistent with the tax life used. As stated above, the reserve ratio test provides a technique for establishing the consistency between the tax life and your subsequent retirement and replacement practices.

If you wish to use the new guideline lives or any life longer than the guidelines, you may do so without challenge for the first 3 years under the Procedure. If you have previously been following replacement practices consistent with the tax lives previously used and continue to follow practices consistent with the new lives claimed, you will automatically meet the reserve ratio test. You, therefore, will be allowed to continue indefinitely to use tax lives at least as short as the guidelines.

In those exceptional situations where your depreciation reserve is initially above the appropriate range for the guideline life or rises above that range during the first 3 years, you will nevertheless be allowed to continue to use a life at least as short as the guideline life for the 3-year transition period. However, the new lives may be questioned beginning in the fourth year only if the use of the reserve ratio test shows that you are not in fact moving toward a replacement practice consistent with the tax life used. Movement toward a consistent retirement and replacement pattern will be considered to be demonstrated if the amount by which your reserve ratio exceeds the appropriate range is lower than in any one of the 3 preceding years. If you have an initially excessive reserve and meet this test in the fourth year and in each year thereafter, you will be permitted a period of years equal to the guideline life to reach the upper limit of the appropriate reserve ratio range. For example, if you are using a 10-year guideline life, you will be allowed a period of 10 years, beginning with 1962, to reduce your reserve ratio to within the appropriate range.

If you have previously used lives shorter than the guidelines, you will be permitted automatically to continue to use these shorter lives if (1) you have previously demonstrated your right to such shorter lives, or (2) you have used these lives for at least one-half of a replacement cycle and your reserve ratio falls within the appropriate range. It is necessary that lives be in use for one-half of a replacement cycle before the reserve ratio test may be used as automatic justification for below-guideline lives, because this test may not reliably indicate whether shorter lives are justified when the life used has only recently been adopted. The same transition and reserve ratio rules which apply to the taxpaper using the guideline lives will also apply thereafter to the taxpayer who justifies shorter than guideline lives on the basis of prior usage.

If you wish to move for the first time to a below-guideline life or to reduce further an already below-guideline life, you will be allowed to do so automatically if (1) your reserve ratio for the preceding taxable year is below the lower limit of the appropriate reserve ratio range, (2) you have been using the life which you now wish to reduce for at least one-half of a full replacement cycle, and (3) the new life to which you wish to move is no lower than the life which can be justified by the use of the Procedure's Adjustment Table. The transition and reserve ratio rules applicable in other situations are similarly available thereafter to you if you move for the first time to a below-guideline life or reduce an already below-guideline life.

If you do not meet the prescribed tests for automatic use of lives shorter than those prescribed in the guidelines, regardless of whether or not you have used them previously, you will still have the opportunity to demonstrate that you are entitled to such shorter lives on the basis of all the relevant facts and circumstances. According to the Procedure, "relevant facts and circumstances" for this purpose include, but are not limited to, evidence that (1) you are using the same depreciable life on your books as the one you are claiming for tax purposes, (2) you actually intend to follow a more rapid replacement practice, (3) you have previously followed replacement practices consistent with the depreciation allowances previously claimed, (4) you make

Continued

abnormally intensive use of your assets, (5) a number of the assets in a guideline class were not new when you acquired them, (6) the guideline class contains, for you, a disproportionate number of relatively short-lived assets, and (7) you are affected by extraordinary obsolescence.

The reserve ratio test, which has been referred to above, is computed as follows:

(1) the reserve ratio is determined by dividing the depreciation reserve for a particular class of assets by the original cost or other basis of these assets;

(2) the rate of growth of the guideline class is generally ascertained by first computing the ratio of assets in the class at the close of the current year to the assets in the class one replacement cycle earlier (e.g., if the tax life of assets is 10 years and the current year is 1972, the assets in the class in 1962, the "base year," would be used), and then by reading the rate of growth from the Procedure's Rate of Growth Conversion Table;

(3) it is then necessary to find the appropriate "test life," which is

(a) the guideline life, if you use a life equal to or longer than the guideline, or

(b) the life previously justified, if you use a below-guideline life which is equal to or longer than the life previously justified, or

(c) the life used in the preceding year, if you wish to establish a below-guideline life shorter than you have previously used, or

(d) the life in the current year, if you wish to justify use of the life which you have been using for one-half of a replacement cycle, or

(e) the life to which you have been lengthened, in all cases where an upward adjustment has been made; and

(4) the reserve ratio is then compared with the reserve ratio range selected from the Reserve Ratio Table which is appropriate to the method of depreciation being used for the assets in that class, the rate of growth in the class, and the test life for that class.

The foregoing can be illustrated by the following examples:

Example 1. Reserve ratio test. Here is an example of how a taxpayer using the straight-line method of depreciation and a 10-year class life would compute — and find that he met — the reserve ratio test:

Cost of assets in guideline class	$10,000
Depreciation reserve	5,200
Reserve ratio	52%
Assets one replacement cycle earlier (assumed)	8,200
Ratio of present assets to base year assets	1.219
Rate of growth (from table)	2%
Test life used	10 years
Appropriate reserve ratio range (from table)	44-56%

Example 2. Downward adjustment of depreciable lives. Suppose a taxpayer using the straight-line method of depreciation has been using a 16-year class life and has been using it for at least 8 years. He can automatically shift to a shorter life in the following situation:

Cost of assets in guideline class	$10,000
Depreciation reserve	4,200
Reserve ratio	42%
Rate of growth (from table)	2%
Test life used	16 years
Appropriate reserve ratio range (from table)	43-55%
Life to which he may drop (from table)	13.5 years

Example 3. Upward adjustment of depreciable lives. A taxpayer using the double-declining balance method of depreciation has been using a 12-year class life and is unable to demonstrate that the facts and circumstances of his case justify use of the life would have the life lengthened in the following situation:

Cost of assets in guideline class	$10,000
Depreciation reserve	6,500
Reserve ratio	65%
Rate of growth	4%
Test life used	12 years
Appropriate reserve ratio range (from table)	53-61%
Life to which he would be lengthened (from table)	15 years

Any lengthening of depreciable lives will be put into effect no earlier than the first year in which the reserve ratio test is not met and the life used cannot otherwise be justified. However, the lives will not be lengthened for any earlier taxable year.

Guidelines not retroactive.

The Procedure is not applicable to depreciation allowances for taxable years for which returns were due to be filed before July 11, 1962. And examination of the depreciation claimed for earlier taxable years will be made under previously established procedures. The new guideline lives set forth in the Procedure will not be considered as evidence that these lives were the appropriate lives in previous years for a taxpayer who did not follow replacement practices consistent with the guidelines. You may, however, in certain circumstances resort to the Reserve Ratio Table in the Procedure to demonstrate that your replacement practice in past years supports the life claimed.

EXPENSES FOR EDUCATION

Expenditures for your education are generally personal and not deductible. However, the cost of education, including research activities, is deductible as an ordinary business expense where the education is undertaken primarily (1) to maintain or to improve skills required in your employment or profession, or (2) to meet the express requirements of your employer or the requirements of applicable law or regulations imposed as a condition to your retention — and not acquisition — of your status, salary or employment. *Thus, educational expenses qualify as deductions only if they are for education of a "refresher" or similar type necessary to maintain the skills required of you in your field of practice.* Educational expenses include tuition fees, the cost of books and similar items, laboratory fees, meals and lodging, and travel and transportation expenses.

You are allowed to deduct educational expenses only if you are employed or otherwise engaged in a profession during the period of the education. Furthermore, educational expenses are deductible only if the minimum requirements for qualification for your particular employment or for the practice of your profession have already been met. The Internal Revenue Service says that the skills "required" in a taxpayer's employment are those which are "appropriate, helpful, or needed." Thus, according to the Service, education which is "customary" for established members of the taxpayer's business or profession occupying positions similar to that of the tax-

payer is considered to be required to maintain or to improve "required" skills. The Tax Court of the United States, on the other hand, has emphasized the taxpayer's "primary purpose" for the education. Because the question whether educational expenses are deductible is largely a question of fact, it is appropriate to point up the differences in points of view held by the Internal Revenue Service and by the Tax Court.

A physician specializing in internal medicine had engaged in practice for three or four years, then embarked upon a two-year specialized course in analysis and techniques of psychiatry and deducted his expenditures for such education. As many physicians, he employed some psychiatric methods in the diagnosis and treatment of patients. Also, at the time of the hearing before the Tax Court, he was still specializing in internal medicine. The Commissioner of Internal Revenue disallowed deduction of the education expenses on the ground that they were not "customary." The Tax Court reversed the determination, saying that it was not "absolutely necessary that customariness be established." The Court put stress upon the "primary purpose" of the education and, pointing out that the physician continued to practice as an internist, held that the "primary purpose" of the special courses in psychiatry was to "maintain and improve his skills" as an internist rather than to allow the physician to become a specialist in psychiatry.

In the same connection, it should be pointed out that it has been held that an already qualified psychiatrist could not deduct the cost of a course he took in order to become a psychoanalyst. The court pointed out that while psychoanalysis is not formally recognized as a specialty by the American Medical Association, it is so regarded by a large body of medical opinion without whose approval it could not be successfully practiced. It, therefore, was held that the psychiatrist's expenses were incurred in qualifying for a specialty and were not deductible.

TRAVEL AND TRANSPORTATION

Traveling and transportation expenses which are ordinary and necessary to the conduct of your medical practice or employment are deductible. The cost of meals and lodging incident to such travel is usually deductible only if you are away from home overnight. An employee should deduct his actual transportation and traveling expenses from his compensation in computing his gross income. Any allowances or reimbursements which he may receive for such expenses must be added to his compensation. If you are in practice for yourself, you should deduct such expenses in arriving at your professional net income.

If you claim a deduction for traveling expenses you should attach to your return a statement showing (1) the nature of your business or employment, (2) the number of days away from home on business, (3) the total amount expended for meals and lodging, and (4) the total amount of other expenses incident to the travel and claimed as a deduction.

Entertainment expenses are not considered a part of the cost of traveling, even though the expenses are incurred while you are away from home. However, as indicated above, entertainment expenses in some instances may qualify as business expenses if they are incurred as ordinary and necessary expenses of your practice.

Travel expenses must be directly attributable to your employment or professional practice and necessary to the conduct of it. These facts must be established in the statement accompanying your return when the deduction is claimed. *Traveling expenses, even though designated for business purposes, will not be allowed if it appears that the trip was intended to be for personal pleasure or vacation purposes.*

If, therefore, your wife accompanies you to a medical convention the portion of the expenses attributed to her travel, meals, and lodging are not deductible, unless it is established that her presence was necessary and served a bona-fide business purpose. Doctors cannot ordinarily provide such proof. Incidental services such as typing notes, assisting in entertaining and so forth, are not sufficient to warrant the deduction.

The expenses of travel to another city to seek or to accept other employment are not deductible. Neither are the traveling expenses incurred in seeking a new location in another city for a doctor's office.

Expenses for commuting between your residence and your office are non-deductible, regardless of the distance or whether the transportation is private or commercial.

ENTERTAINMENT AND GIFTS

Because expenditures for entertainment and gifts are ordinarily social or personal expenses, you have the burden of establishing that such expenditures are reasonable in amount and have a direct relationship to the conduct of your profession and that business benefit is reasonably to be expected. You must be prepared to support your entertainment expenses with a record of whom you entertained, your professional relationship to such persons, *and* the extent to which you did in fact supplement your professional earnings through such persons.

Under the prevailing rule, the costs incurred by a professional man in entertaining clients or patients are ordinarily not deductible in full, because a portion of the expense is usually attributable to himself or to his family. Consequently, only that portion of your entertainment cost which is different from or in excess of the amount you would ordinarily spend for personal purposes is deductible.

Club Dues

A professional man may deduct his club dues if he can show that he joined the club to meet people for business reasons, and that the people he met were a source of profit to him. To be allowed as a business deduction, the relationship between club expenses and business income must be apparent and convincing. Ordinarily, only a part of the cost of dues to a social club is allowed as a deduction.

The cost of acquiring membership in a club is to be distinguished from annual, monthly, or other periodic dues. For the original cost is a capital expenditure, and is not deductible in the year paid. Nonetheless, the cost of club memberships may not, as differentiated from many capital expenditures, be amortized over a period of years.

Home Entertainment

The cost of business entertaining in the home is a deductible expense, including the cost of food, drink, catering services, flowers, and of hiring servants for the occasion. In the event of a tax examination the Internal Revenue Service is likely to require submission of strict proof, such as a list of the persons entertained, their connection with your practice, and how they increased the earnings from your practice. The Service contends that the cost of entertaining business guests at home is deductible as a business expense only to the extent of any additional expense by reason of their presence. If they bring their wives along, the position

Continued

is taken that "it is doubtful whether any part of the total expenses incurred would be deductible." The Service apparently regards such affairs as mere social gatherings among friends, and too remotely connected with business in the usual case to allow a deduction.

Where reciprocal entertaining is involved, as where a group of professional or business acquaintances take turns picking up each other's entertainment checks without regard to whether or not any business purposes are served, the expenses are of a personal nature and are not deductible.

Gifts

With respect to Christmas gifts exchanged between business associates, the Internal Revenue Service says that unless the taxpayer includes the fair market value of the gift he receives in income, he cannot deduct the costs of the gifts he sends to his associates.

Records

In the absence of *adequate records* to substantiate expenses incurred, any deduction for such expenses will be in jeopardy. Detailed records should be maintained and preserved as to dates, places, and events, the name of guests, the amounts expended, and the business benefit derived or reasonably expected to be derived. These records should be supported, wherever possible, by cancelled checks, receipts, statements, or similar evidence. However, it is not necessarily true that these expenses will be disallowed merely because you do not have complete documentary evidence which will establish a precise amount. But approximations will be considered by the Internal Revenue Service only when three requirements have been met: (1) it must appear that some expense was actually incurred; (2) the expense claimed must be so related to your practice that it qualifies as an ordinary and necessary business expense; and (3) a basis for approximation must be constructed from available evidence both as to the amount and the business purpose of the expenditure claimed.

NEW RULES FOR TRAVEL, ENTERTAINMENT, ETC.

The rules discussed above with respect to the deductibility of amounts expended for travel and transportation and for entertainment and business gifts and to the requirement of adequate records to substantiate deductions for such items on your 1962 income tax return will, in many respects, be of limited application for 1963 and subsequent years. Effective January 1, 1963, new rules will apply with respect to these matters. You should be familiar with these rules in order that you might have a basis for planning during 1963.

Test for Deductibility

The effect of the new rules pertaining to the deductibility of entertainment expenses and business gifts is that many of your expenditures for such items having a "business connection" nevertheless will probably not be deductible on your 1963 return. In the first place, no deduction will be allowed for any expense with respect to an activity which is of a type generally considered to constitute "entertainment, amusement, or recreation" unless you establish that the item was "directly related to, or, in the case of an item directly preceding or following a substantial and bona fide business discussion (including business meetings at a convention or otherwise), that such item was associated with, the active conduct" of your practice. Thus, to justify a claimed deduction for entertainment expenses, you must show that the incurring of such expenses was directly related to or associated with your effort to obtain new business or to encourage the continuation of an existing business relationship. This means, simply, that you must show a greater degree of proximate relation between the expenditure and your practice than is required under the law applicable to 1962 and prior years.

For example, suppose that for a valid business purpose you entertain a patient or a doctor, who refers patients to you, at dinner and the theater, and that the wife of your guest accompanies you. Under the law applicable to 1962 and prior years, you could probably claim a deduction for the entire expense. However, under the new rules, no deduction would be allowed for any portion of the expense attributable to the wife since as to her you would be unable to show a sufficiently close relationship between the expense and your practice, unless, of course, the wife also happens to be your patient.

Allocation

Objective standards are provided by the new rules to determine the apportionment between the part of the expense which meets the "directly related to or associated with" test and the part which does not. Under this rule, if you entertain a group of 10 individuals, 3 of whom are present or prospective patients, and 7 of whom are social guests, deduction will be allowed for only 3/10 of the expenses incurred.

The new rules also provide certain changes in the existing law with respect to allocating deductions for traveling expenses. The rules effective in 1963 will require taxpayers to allocate traveling expenses (including meals and lodging) between the portion of a trip which is for a business purpose and the portion which is for pleasure. The new rules will, therefore, eliminate in many cases the "but for" rule applicable to 1962 and prior years under which you are permitted to deduct your entire traveling expenses (even where a substantial portion of the time away from home is for purely personal purposes) if you are able to establish that the primary purpose of the trip was connected with your practice. An exception to the allocation requirement is made where the period you are away from home is not more than one week *or* where the time spent on the personal portion of your trip is less than 25 percent of the entire period you are away from home on the trip. Where no allocation is required to be made, deduction of traveling expenses will continue to be governed by the primary purpose test of existing law.

"Lavish or Extravagant"

Even if a direct business purpose is clearly established, the new rules provide that no deduction will be allowed for any "entertainment, amusement, or recreation" expenses or for meals and lodging otherwise deductible as traveling expenses which under the circumstances in which they are incurred are lavish or extravagant. This does not mean that a deduction will be disallowed for the entire amount of the expenses, but means merely that no deduction will be allowed for the portion of the expenses which are lavish or extravagant. At the date this is written, neither Congress nor the Service has provided any guidelines pertaining to what expenditures will be treated as lavish or extravagant. Hopefully, such guidelines will be forthcoming in the near future.

Club Dues

Club dues and fees paid to any social, athletic or sporting club or organization will not be deductible where the primary use of the club facilities is personal, and will not be deductible in any event unless your use of the club is "directly related to the active conduct" of your practice. If membership entitles your family to use the facilities of the club, their use as well as yours will be considered in determining whether your use of the club is primarily business use. Where the primary use

On December 29, 1962, after the section of this article pertaining to new rules for travel and entertainment expenses and business gifts effective January 1, 1963, was written, the Commissioner of Internal Revenue published final regulations with respect to new requirements for substantiating the elements of such expenses. As expected, the final regulations require documentary evidence, such as itemized receipts, for such expenses only if the item exceeds $25, rather than the $10 amount contained in the earlier version of the regulations. In any case, if your expenses do not amount to more than $25 for any single item, you will not have to maintain or produce receipts. Thus, if you take a doctor, who refers patients to you, out to dinner and spend $15 for drinks at a bar, and $18 for the dinners, you need not submit a receipt for either item. In addition, a salaried person, for example, can spend up to $25 per day without submitting records and receipts, so long as his employer's accountant or auditor is satisfied with the accounting.

Some of the details which concerned most taxpayers when the earlier version of the regulations was first published have been eliminated. For example, you will not be required to record every expenditure made on a business trip, contrary to the earlier requirement. You can lump together all of your own meals for one day, rather than recording separately your expenditures for breakfast, lunch and dinner. Similarly, you can lump into one amount all of your taxi fares for one day, and other similar incidental expenses can be bunched into "appropriate categories." While you will be required to maintain a receipt for every hotel bill, you will not now be required to obtain receipts for transportation unless they are readily available.

Even though some of the burdens of record keeping have been lessened as a practical matter, you will still be required to maintain adequate records in the form of a contemporaneous diary, for example, concerning the elements of your expenditures for travel, entertainment and business gifts discussed above. The Commissioner has granted most taxpayers until February 1, 1963, to begin the new style of record keeping, and most employers may delay compliance until as late as April 1, 1963. Existing rules will prevail in the meantime.

of the club facilities is in furtherance of your practice, and this would require at least 51% business use, the cost of the club dues or fees will be deductible to the extent of the use directly related to the active conduct of your practice. Accordingly, if membership in a club costs, say, $100 per year and the club is used for clear business purposes three-fourths of the time, $75 will be deductible. It is the actual use of the club, not its availability for use or your purpose for joining the club, which establishes the deductibility of the club dues.

This does not mean, however, that out-of-pocket business entertainment expenses incurred at a club will not be deductible where the required relationship between the entertainment and your practice is shown to exist. Such expenses will be deductible under the new rules applicable to entertainment activities without regard to the tax treatment of club dues. Moreover, the new rules pertaining to the deductibility of club dues do not apply to dues or fees paid to membership in civic or professional organizations because these organizations are not deemed social, athletic or sporting clubs. Deductibility of these dues will continue to be governed by present rules.

Business Gifts

Under the new rules, deduction for business gifts will be disallowed to the extent that the total gifts during the year exceed $25 with respect to any person. And to be deductible at all, the expenses which you incur for business gifts must be an ordinary and necessary to your practice.

Exceptions

Several specific exceptions are made in the application of the new disallowance rules discussed above. Most of the exceptions have no particular application to the conduct of a medical practice and will not be discussed here, but three of these exceptions might apply in your case, and you should be aware of them. Where an expense falls within one of the exceptions discussed below, the item will continue to be deductible to the same extent as allowed by existing law. But the new substantiation requirements discussed below will have to be satisfied with respect to any such expense.

The first exception concerns business meals. A deduction will be allowed for the cost of food and beverages furnished to any individual under circumstances which (taking into account the surrounding in which furnished, your business or income-producing activity, and the relationship to your business or activity of the persons to whom the food and beverages are furnished) are of a type generally considered to be conducive to a business discussion. It appears that this exception should leave undisturbed the most significant portion of "goodwill" entertaining conducted today. However, under this exception, it will not be possible to deduct luncheon expenses of a so-called reciprocity luncheon group in which doctors frequently lunch together and alternate in paying the check and claiming it as a business expense deduction. This practice is not considered to be connected with a business, but to be personal or social, and is not deductible under existing law.

Secondly, expense which you pay or incur on behalf of your employer or some other person will be deductible only if your employer has not treated the expenses as compensation or if you make an accounting to the other person on whose behalf the expenses were paid or incurred. For this purpose, your accounting must meet the substantiation requirements discussed below.

Finally, an exception to the new disallowance rules is provided for expenses directly related and necessary to your attendance at a business meeting of an organization such as a medical association or a chamber of commerce.

Substantiation

Perhaps the most important provision in the new rules insofar as your planning is concerned is that pertaining to substantiation. No deduction will be allowed for any item with respect to travel or entertainment expenses or business gifts unless you substantiate by adequate records or by other sufficiently corroborating evidence (1) the amount of the expense or gift, (2) the time and place of the travel or entertainment or the date and description of the gift, (3) the business purpose of the expense or gift, and (4) the business relationship to you of the person or persons entertained or

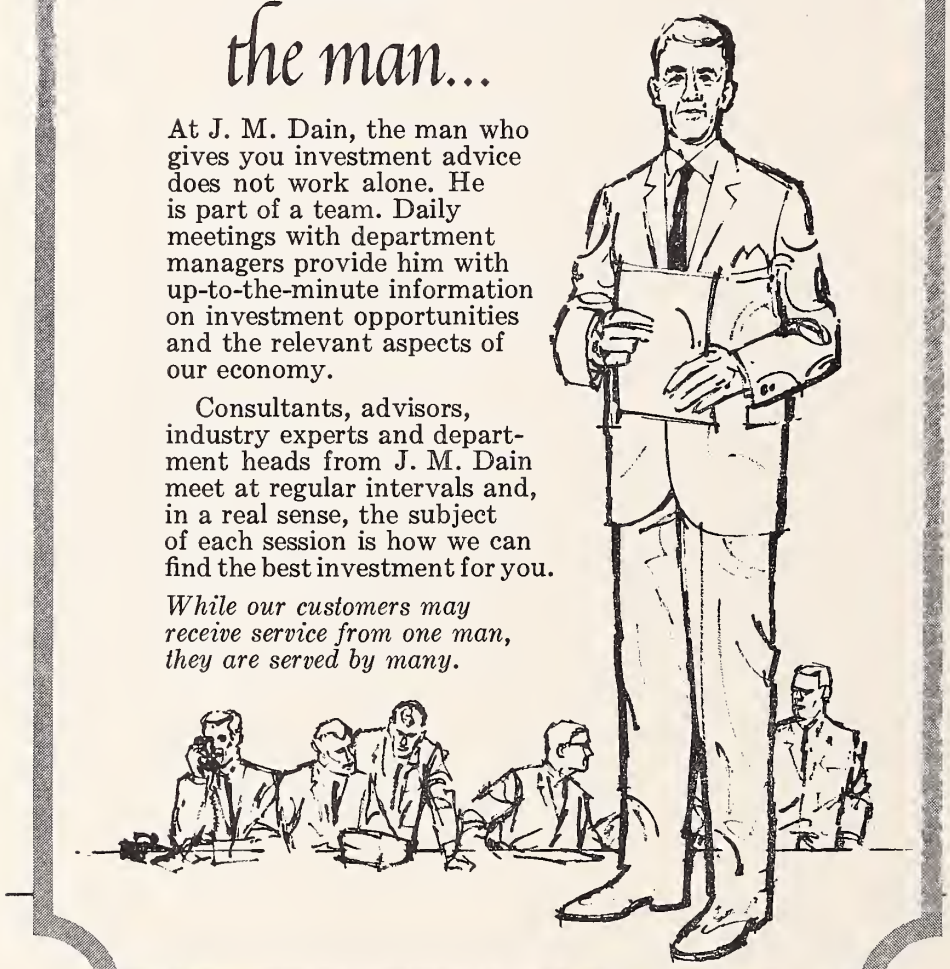
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receiving the gift. The degree of corroboration required to support a claimed deduction will vary as respects the business relationship and purpose, the time and place, and the amount of the expense. Thus, it appears that your oral testimony together with circumstantial evidence available may be considered "sufficient evidence" for the purpose of establishing the business relationship and purpose under the new rules; however, oral testimony plus considerably more specific evidence will be required to be "sufficient evidence" as to the amount of the expense.

On November 8, 1962, the Commissioner of Internal Revenue formally proposed regulations to implement the statutory requirements of substantiation and are applicable to all taxable years beginning on or after January 1, 1963. The proposed regulations provide for extremely detailed record-keeping, and while the requirements might be made less burdensome in the final regulations, until the requirements are lessened, you should assume that you will be required to meet the requirements of record-keeping presently contained in the proposed regulations in order to support a claimed deduction for travel and entertainment expenses on your 1963 federal income tax return.

For one thing, the proposed regulations contain the elements of travel and entertainment expenses which must be proved to support a claimed deduction. In the case of travel expenses, you must prove each of the following items: (1) the cost, including the cost of transportation, meals and lodging, and incidental expenses such as telephone and telegraph; (2) the time, including the date and hour of departure and return, the total number of days away from home, and the number of days (and hours thereof, if material) spent on business at each destination; (3) the place or places of travel, including the name or location of each destination; and (4) the business purpose or purposes, including the nature of the business benefit expected to be derived by you as a result of the travel to each place. The elements to be proved with respect to a claimed deduction for entertainment expenses are: (1) the cost; (2) the time, including date, hour and duration; (3) the place or places of entertainment, including name, address or location, and description of the entertainment; (4) the business purpose, including the nature of the business benefit expected to be derived by you as a result of the entertainment; and (5) the business relationship to you of each person entertained for whom a deduction is claimed, including the name of each of such persons, the nature of each of such persons' activities or occupation as they relate to your business, and the total number of persons entertained whether or not a deduction is claimed on account of all such persons. If you claim a deduction for entertainment directly preceding or following a "substantial and bona fide business discussion" on the ground that such entertainment was "associated with" the active conduct of your medical practice, the elements to be proved with respect to such an entertainment expense, in addition to those enumerated above with respect to other entertainment expenses, are: (1) the time, including date, hour and duration of the business discussion; (2) the place or places of business discussion, including name and address or location; (3) the nature of the business discussion; and (4) the name and business relationship to you of each person participating in the business discussion. Finally, the elements to be proved with respect to a claimed deduction for a business gift are: (1) the cost of the gift to you; (2) the date of the gift; (3) a description of the gift; (4) the business purpose of the gift, including the nature of the business benefit expected to be derived by you as a result of the gift; and (5) the business relationship to you of the recipient of the gift, including the recipient's name and the nature of his activities or occupation as they relate to your business.

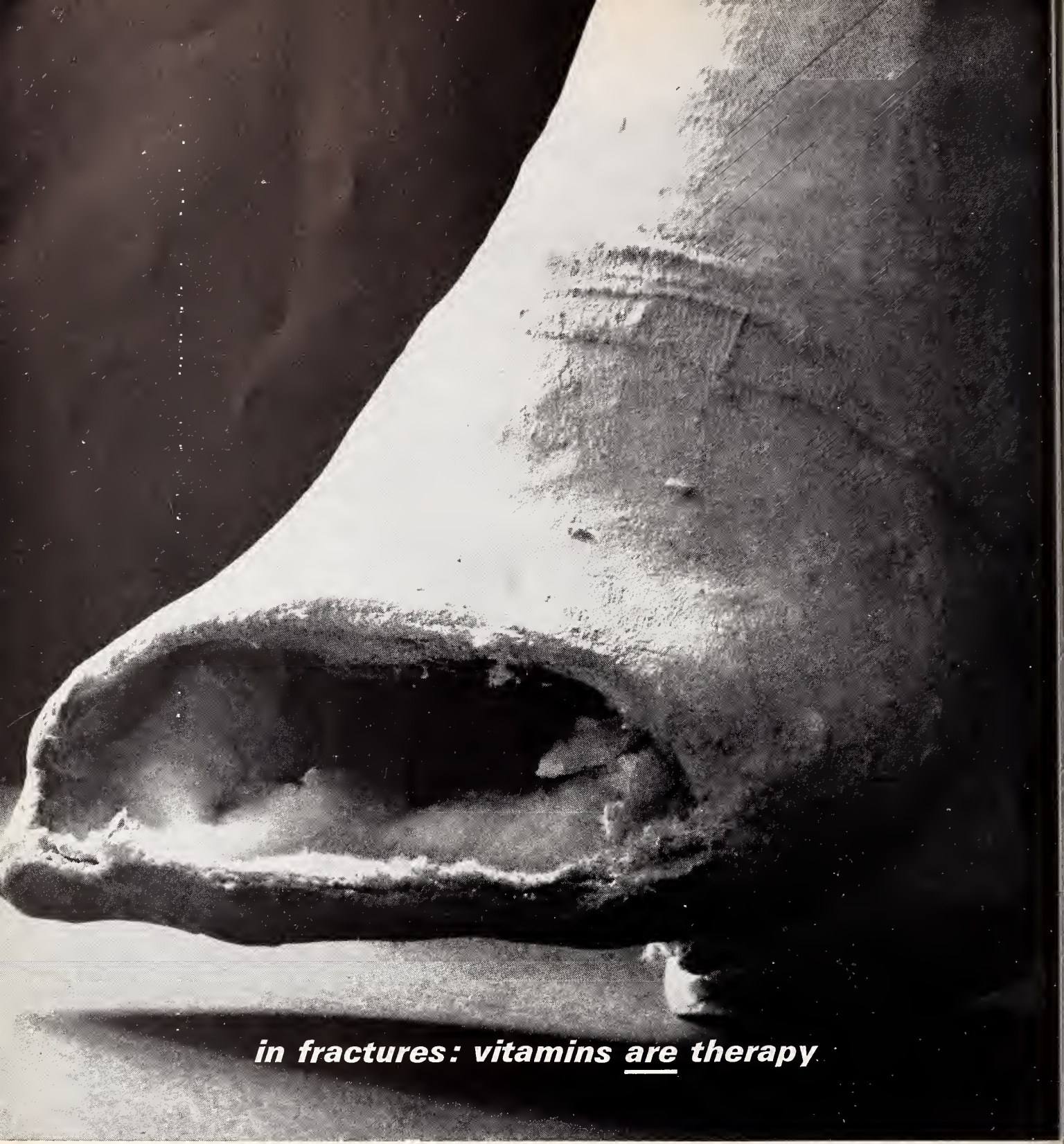
The question, of course, is how you can prove each of the required elements of an expenditure to the satisfaction of the Internal Revenue Service. One of the provisions in the proposed regulations states that even though a taxpayer maintains records to support each element of a claimed deduction, the Service is not bound by such records and may require other corroborating evidence for any one or all of the elements of an expenditure. But laying that aside, the proposed regulations require you to maintain *and* produce detailed records which, together with supporting evidence, will constitute "clear proof" of each expenditure. If *every element* of an expenditure is not supported by "clear proof," the entire expenditure will be disallowed. You are required to maintain detailed and *contemporaneous* records together with "sufficient documentary evidence" to support a claimed deduction unless you are prepared to support a claimed deduction with noncontemporaneous records plus corroborative evidence including "sufficient documentary evidence" which, taken together, will provide credibility at least equal to that afforded by contemporaneous records and "sufficient documentary evidence."

The question then arises as to what will constitute "sufficient documentary evidence." In any case where the expenditure is $10 or more, the proposed regulations state that you will be considered as having substantiated an expenditure by adequate records if you maintain (1) an account book, diary, statement of expense, or similar record in which the information as to each element of an expenditure listed above is recorded in a contemporaneous and consistent manner throughout the taxable year; *and* (2) documentary evidence, such as itemized receipts, itemized paid bills, or similar evidence, directly supporting such information. *A cancelled check, without a fully itemized bill, does not establish the element of cost,* but a cancelled check with a fully itemized bill will "ordinarily" establish the element of cost. Accordingly, without additional evidence, documents such as receipts, bills or other statements not itemized in detail (including nonitemized statements from credit card systems), bills or other statements not independently marked as paid, canceled checks or check stubs, do *not* constitute "sufficient documentary evidence."

If, for some reason, you fail to maintain the records or supporting documentary evidence required with respect to an element of an expenditure, you must "clearly establish" such element (1) by your own statement in writing containing specific information in detail as to each element; *and* (2) by other corroborative evidence sufficent to establish such element. And where the element to be proved in this manner is either the cost, the time, the place, the date, or the description of an expenditure, the corroborative evidence required is direct evidence, "such as the oral testimony or sworn statement of persons entertained" (at best a distasteful follow-up of an evening of entertainment), or other documentary evidence, such as itemized receipts, itemized paid bills, etc. However, where the element to be proved is either the business relationship or the business purpose of the expenditure, the corroborative evidence may be circumstantial.

In determining whether an expenditure is $10 or more, the proposed regulations provide that each separate payment by you will ordinarily be considered to constitute a separate expenditure. However, concurrent or repetitious expense items of a similar nature occurring during the course of a single event will be considered a single expenditure. Thus, for example, if you entertain a patient or another doctor at dinner and thereafter at the theater, the payment for dinner will be one expenditure and the payment for the theater tickets will be a separate expenditure. Similarly, if during a day of business travel you make separate payments for breakfast, lunch and dinner, you will be considered to have made three separate expenditures. However, if

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during entertainment at a cocktail lounge you pay separately for each serving of refreshments, the total amount expended for the refreshments will be considered as a single expenditure. Tips are considered separate expenditures. Therefore, in accordance with these rules, if a separate expenditure is $10 or more, you will be required to maintain both an account book, diary, etc. and an itemized receipt, itemized paid bill, etc. with respect to such expenditure; if, on the other hand, a separate expenditure is less than $10, you will be required to maintain only the account book, diary or similar records of the expenditure.

7% INVESTMENT CREDIT

In 1962, Congress amended the Internal Revenue Code to provide for an "investment credit," which is a credit available against your 1962 federal income tax liability equal to a maximum of 7% of your "qualified investment" in new and used "section 38 property" acquired by you on or after January 1, 1962. The investment credit is computed on new Form 3468, and is entered on page 1 of Form 1040 along with your other credits against tax. Included in the definition of "section 38 property" is depreciable, tangible personal property with a useful life of at least 4 years. The "qualified investment" for any taxable year is the total of (1) the "applicable percentage" of the basis of new "section 38 property" placed in service during the taxable year, plus (2) the "applicable percentage" of the cost (up to $50,000) of used "section 38 property" placed in service during the taxable year. The "applicable percentage" for any property depends upon its useful life and is the same, regardless whether the property is new or used. Where the property has an estimated useful life of at least 4 but less than 6 years, only one-third of the investment in the asset will qualify for the 7% credit. If the asset has a useful life of at least 6 but less than 8 years, two-thirds of the investment will qualify. And investments in assets with a useful life of 8 years or more will qualify in full. In no event can the investment credit exceed an amount equal to the first $25,000 of your income tax liability plus 25% of your liability over that amount.

For example, suppose that on or after January 1, 1962, you paid $1,500 for used equipment with a useful life of 5 years and $10,000 for a new X-ray machine with a useful life of 10 years. You have "qualified investment" as follows: (1) for the used equipment, $500 (⅓ of $1,500), and (2) for the new X-ray machine, a full $10,000. You, therefore, are entitled to an investment credit against your 1962 federal income tax liability of 7% of $10,500 ($500 plus $10,000), or $735. You will also be required to reduce the basis of these assets for purposes of computing depreciation by the amount of the investment credit. Thus, the depreciable basis of the used equipment will be reduced by 7% of $500, or $35, to $1,465; the depreciable basis of the X-ray machine will be reduced by 7% of $10,000, or $700, to $9,300.

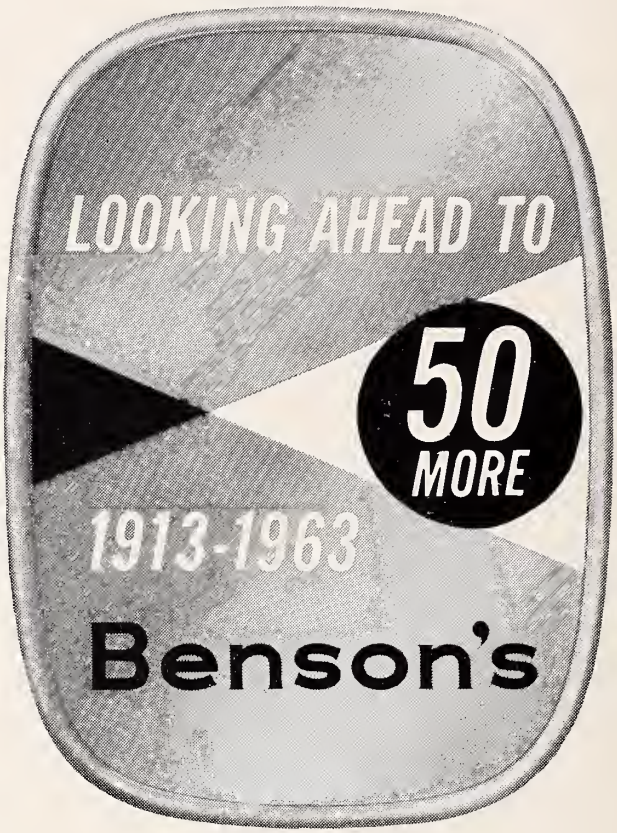
(To Be Continued in February)

WATCH FOR!

February Issue	—	Second Half 1962 Income Tax Guide
March Issue	—	H.R. 10 — What It Means To You (A legal analysis of what this new regulation can mean to you, and how it compares with the Minnesota Corporations Act.)

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Physician's Guide to Wills, Trusts, and Estates

Almost every physician intends to make a will before he dies. Yet, it is a common occurrence for physicians to die without a will. Perhaps this neglect is due to inertia or an aversion to deal with matters which contemplates one's own demise. Ironically, this procrastination is shared with members of the legal profession. Lawyers who have spent a lifetime drawing wills for their clients often die without having drawn their own will.

This guide can help you to minimize the taxes that may be due at your death and to understand the important aspects of a will so that you can plan more wisely for your family's future security.

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PART IV

THE FEDERAL GIFT TAX

THE GIFT of property during life to those who would otherwise be the beneficiaries under your will is the most effective way of reducing estate taxes. The gift of income property to members of your family who are in lower-tax brackets can also provide a significant reduction in your income tax.

Nature of the Tax

The federal gift tax is a tax paid by donors on the gifts they make. The purpose of the gift tax is to limit avoidance of the estate tax by people who give away their property to those who would otherwise receive it by will. Like the federal estate tax, the federal gift has a scale of progressively higher rates. Nevertheless, if your estate is subject to estate taxes, there is a tax advantage to be obtained through gifts because gift tax rates are three-fourths of the estate tax rates and there is ample opportunity to make tax-free gifts.

A gift can be made outright or in trust. For example, you can create a trust giving income for a period of years or for life to one person and the principal subsequently to another person. If the gift is not revocable, whether it is outright or in trust, it may be subject to a gift tax.

Exclusions and Exemptions

You can give as much as $3,000 per person each year to any number of people without incurring a gift tax. For example, if you give $3,000 to each of your 3 children during the year, there is no tax and you are not required to file a gift-tax return.

Not all gifts in excess of $3,000 to a donee necessarily involve the payment of a gift tax. Gifts to charities are not subject to the gift tax. In addition, there is a "lifetime exemption" of $30,000. The lifetime exemption may be used in making one or more gifts during the year or it

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patient protected
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Nephenalin®

(the dual-action anti-asthmatic tablet)

. . . works with nebulizer speed—provides four-hour protection

One NEPHENALIN tablet provides: *air in a hurry*—through sublingual isoproterenol HCl, 10 mg. *air for hours*—through theophylline, 2 gr.; ephedrine, ⅜ gr.; phenobarbital, ⅛ gr.
Dosage: Hold one NEPHENALIN tablet under the tongue for five minutes to abort the asthmatic attack promptly. Then swallow the tablet core for four full hours' protection against further attack. Only one tablet should be taken every four hours. No more than five tablets in 24 hours.
Supplied: Bottles of 50 tablets. For children: NEPHENALIN Pediatric, bottles of 50 tablets.
Caution: Do not administer NEPHENALIN with epinephrine. The two medications may be alternated at 4-hour intervals. NEPHENALIN should be administered with caution to patients with hyperthyroidism, acute coronary disease, cardiac asthma, limited cardiac reserve, acute myocardial damage, and to those hypersensitive to sympathomimetic amines. Phenobarbital may be habit forming. THOS. LEEMING & CO., INC., New York 17, N.Y.

may be used up piece meal as you see fit during your lifetime. If you were to make a gift to someone of $33,000, you could avoid any tax by deducting your lifetime exemption of $30,000 in addition to the $3,000 exclusion.

Future Interest

The $3,000 annual exclusion only applies to gifts of "present" interests in property, but the $30,000 lifetime exemption may be used for gifts of "future interests" as well as present interests in property. A future interest is one in which the recipient of the gift does not have the right to the present use, possession, and enjoyment of the property.

The Marital Deduction

The gift-tax law also provides for a marital deduction. One-half of any gift to a spouse is excluded from the gift tax. Therefore, a $6,000 gift to your wife is tax-free. Also, with the consent of your spouse, you can use her exemptions and exclusions in making gifts to third persons. It is immaterial that only one may own the gift property. If your wife joins in the gift, you can make a gift of $6,000 in value tax free without using any part of your respective $30,000 exemptions. If neither had used any part of his or her $30,000 exemption, a single gift of $66,000 in property belonging to either or both of them could be made tax free, for example, to one of their children or any other person.

Gifts in Contemplation of Death

Taxable estates can be reduced by lifetime gifts, either outright or irrevocably in trust. But if you die within 3 years, the gifts will still be considered part of your estate if it cannot be proven that the gift was not made in contemplation of death. After 3 years, the gift is not treated as part of your estate no matter what your motives were.

The presumption that a transfer made within 3 years prior to death is made in contemplation of death is frequently overcome. This requires proof that the donor was in reasonably good health, life-minded, and active, or that his motives in making the gift were those associated with life rather than death. For example, the desire to help children in financial need, to purchase a home for a child, to provide a fund for a college education, and gifts for special occasions such as Christmas, birthdays, communions, bar mitzvahs, weddings and graduations have been held to be made with lifetime objectives.

Assume you paid a federal gift tax on property that you gave away within 3 years before your death and the gift is later held to have been made in contemplation of death. The property will be treated as if it were still part of your estate and therefore subject to the estate tax. However, the estate tax will be reduced by a "gift-tax credit" not to exceed the amount of estate tax that is attributable to the gift. Generally, the entire amount of the gift tax may be deducted from the estate tax.

Tax Savings

A program of periodic tax-exempt gifts can produce substantial savings for the estate of the doctor who has reached a point of financial security where he can be concerned about minimizing income and estate taxes. Even when gifts are subject to the gift tax, there is still a savings because gift-tax rates are three-quarters of the estate tax rates. Also, property transferred by gift is removed from the donor's top estate-tax brackets and taxed at the bottom gift-tax brackets. The gift-tax rates appear below in Table 5. Furthermore, the $3,000 annual exclusion for each donee and the use of your $30,000 lifetime gift tax exemption does not affect the $60,000 estate tax exemption.

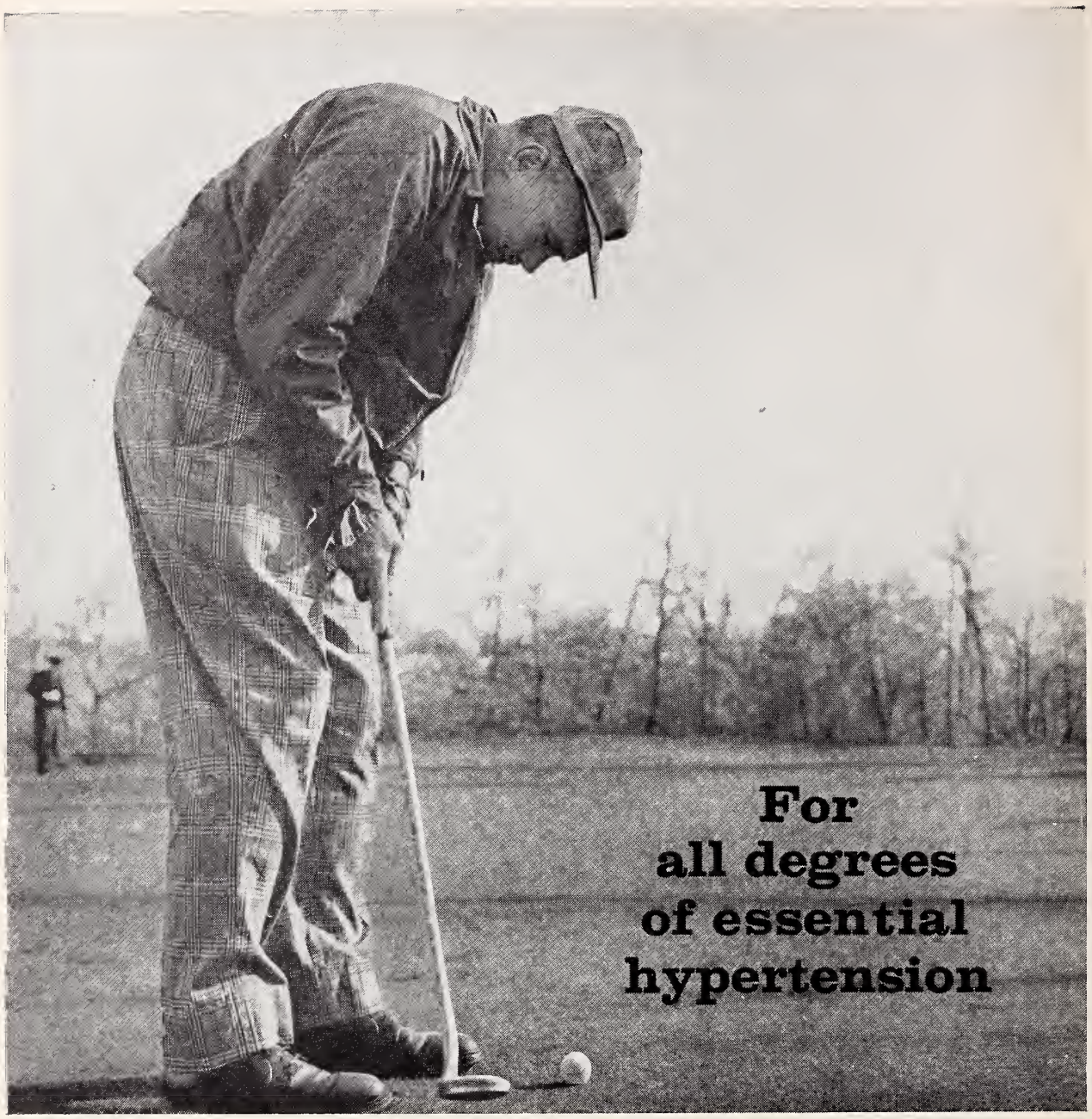
State Gift Taxes

In addition to the federal gift tax, there are relatively small gift taxes to be paid in California, Colorado, Louisiana, Minnesota, North Carolina, Oklahoma, Oregon, Rhode Island, Tennessee, Virginia, Washington and Wisconsin. No credit is allowed against the federal gift tax for these state taxes.

Gifts to Minors

There are various ways in which you can make valid gifts to minors which will reduce your estate. For example, a bank account may be opened in a minor's name alone. If the child has attained banking age, that is, anywhere from 8 to 13, depending upon the local state law, he will be allowed to make withdrawals. Another way is to purchase U. S. Savings Bonds in only the child's name. The parent may redeem the bonds for the child if the child is not sufficiently competent to redeem them himself. A life insurance policy can also be gifted effectively to a minor by transferring to him all the incidents of ownership.

Continued



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Rautrax-N decreases blood pressure for almost all patients with mild, moderate or severe essential hypertension. Rautrax-N also offers a new sense of relaxation and well-being in hypertension complicated by anxiety and tension. And in essential hypertension with edema and/or congestive heart failure, Rautrax-N achieves diuresis of sodium and chloride with minimal effects on potassium and other electrolytes.

Rautrax-N combines Raudixin (antihypertensive-tranquilizer) with Naturetin c̄ K (antihypertensive-diuretic) for greater antihypertensive effect and greater effectiveness in relief of hypertensive symptoms than produced by either component alone. Rautrax-N is also flexible (may be prescribed in place of Raudixin or Naturetin c̄ K) and economical (only 1 or 2 tablets for maintenance in most patients).

Supply: Rautrax-N — capsule-shaped tablets providing 50 mg. Raudixin, 4 mg. Naturetin and 400 mg. potassium chloride. *Rautrax-N Modified* — capsule-shaped tablets providing 50 mg. Raudixin, 2 mg. Naturetin and 400 mg. potassium chloride.

†Hutchison J. C.: Current Therap. Res. *2*:487 (Oct.) 1960.

For full information, see your Squibb Product Reference or Product Brief.

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Squibb Standardized Rauwolfia Serpentina Whole Root (Raudixin) and Bendroflumethiazide (*Naturetin) with Potassium Chloride

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Table 5.—Federal Gift Tax Rates

The Internal Revenue Code permits a marital deduction for gift tax purposes, not exceeding 50% of the value of gifts by husband or wife to each other, with the result that under certain circumstances one-half of the value of a gift between spouses is deductible. It also permits the treatment of gifts by either spouse to third persons as having been made one-half by each when both consent to such division.

The gift tax is computed for any calendar year on the basis of the net gifts for such year. In computing net gifts a citizen or resident is entitled to one exemption of $30,000, covering all gifts, which may be taken in any one year, or distributed over a number of years. In addition to this exemption, the donor is entitled to an annual exclusion of $3,000 for each donee. This exclusion will apply to all gifts, including gifts in trust, except to the extent a gift of a future interest may be involved.

Taxable Gifts After Exemptions	Tax on Column 1	% on Excess
$	$	2¼
5,000	112½	5¼
10,000	375	8¼
20,000	1,200	10½
30,000	2,250	13½
40,000	3,600	16½
50,000	5,250	18¾
60,000	7,125	21
100,000	15,525	22½
250,000	49,275	24
500,000	109,275	26¼
750,000	174,900	27¾
1,000,000	244,275	29¼
1,250,000	317,400	31½
1,500,000	396,150	33¾
2,000,000	564,900	36¾
2,500,000	748,650	39¾
3,000,000	947,400	42
3,500,000	1,157,400	44¼
4,000,000	1,378,650	47¼
5,000 000	1,851,150	50¼
6,000,000	2,353,650	52½
7,000,000	2,878,650	54¾
8,000,000	3,426,150	57
10,000,000	4,566,150	57¾

Gift of Real Estate

It is possible to make a valid gift of real property directly to a minor, but this is not usually desirable. If it should become necessary to mortgage or sell the property, a court-appointed guardian would probably be required to act for the child. The practical way to make a gift of real property to a minor is through a trust. The trustee can either be an individual or a corporate trustee.

Gift of Securities

Outright gifts without restrictions to minors usually can reduce the family tax liability, but there is always the possibility that, given a free hand, the minor may dissipate the gift. Without a court-appointed guardian, stockbrokers and dealers in securities will not purchase them since a minor can later disaffirm the sale if he so desires. The appointment of a guardian involves a court proceedings, the posting of a bond conditioned upon the guardian's faithful performance of his duties, and a periodic accounting to the court. Guardians are also restricted in the type of investments which they may make.

Gifts to Minors Act

You can now invest as custodian for your child and have the income taxed to him, except that if you use the income to fullfill parental obligations to your child, it will be taxed to you.

With minor differences, the Uniform Gifts to Minors Act has been enacted in almost all states. This act makes it possible to make a gift to a minor of securities or money without the gift being made outright, in guardianship, or in trust. The procedure which the law requires is relatively simple.

A gift made under the Uniform Gifts to Minors Act gives to the custodian the power to collect, hold, manage, invest, and reinvest the custodial property. The law provides that the custodian pay over to the minor for expenditure by him, or expend for the minor's benefit, so much of all the custodial property as the custodian deems advisable for the support, maintenance, education, and benefit of the minor.

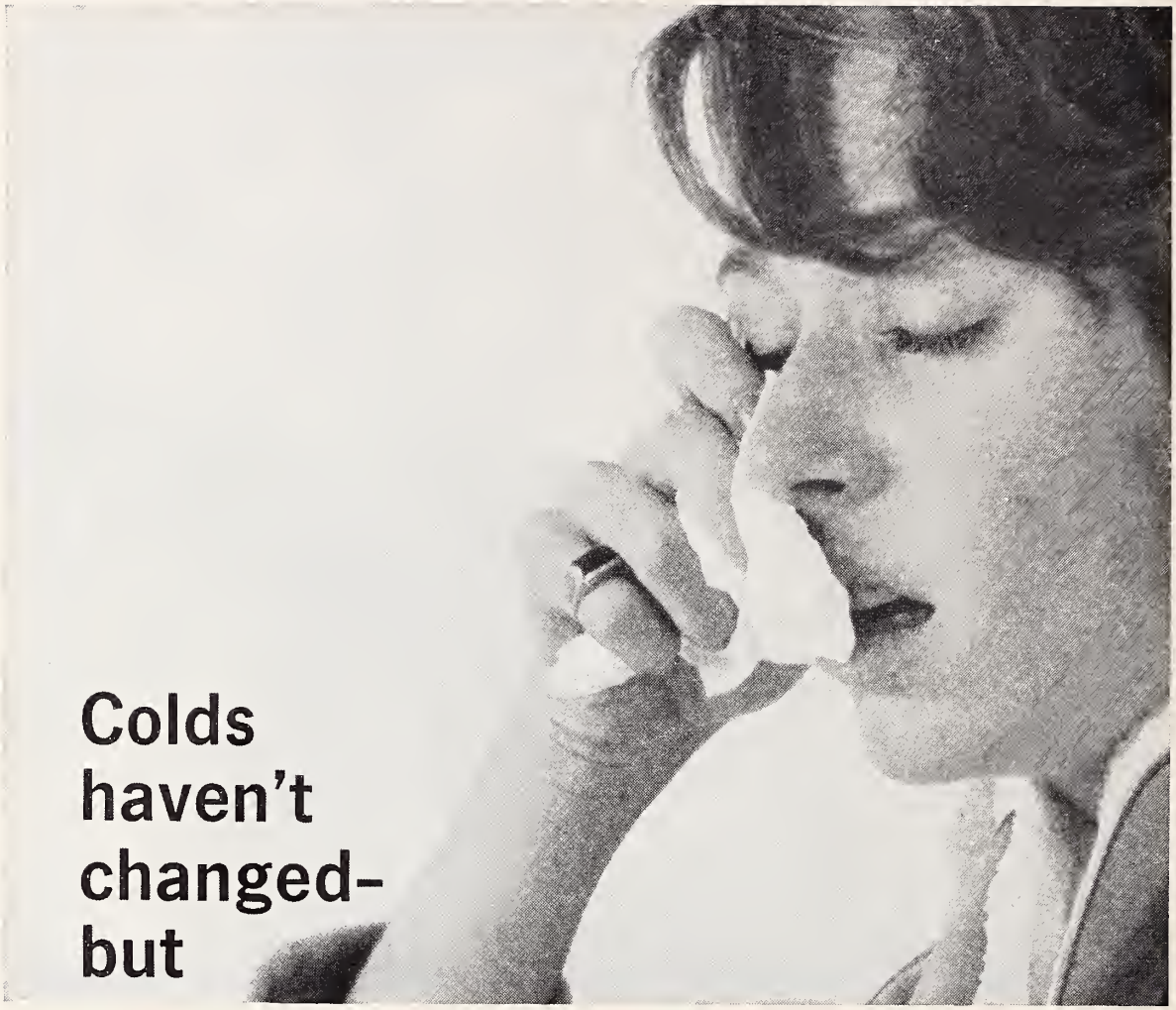
If the custodian is not the donor, he may resign by signing a statement of resignation which designates the successor custodian, and causing all securities to be registered in the name of the successor custodian. If the custodian is also the donor, he can resign only by petitioning the court to appoint a successor.

The Uniform Gifts to Minors Act avoids guardianship with its limitations and the need for executing trust agreements. The minor is the legal owner of the custodial property but the custodian acts as his statutory manager. The custodian may give the minor or spend on behalf of the minor as much of the custodial property as he considers necessary for his support or education. However, if income from custodial property is used to pay for the support or education of the donor's child, the income will be taxed to the donor. When the minor attains the age of 21, the custodianship ceases and the unexpended property and income are turned over to him.

Gift in Trust

The custodian laws for administering gifts to minors provide a simple mechanism for making gifts to children who can be expected to be sufficiently mature at age 21 to handle property

Continued



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NTz Nasal Spray provides prompt, dependable decongestion of nasal membranes—for fast relief of colds. NTz is "...singularly effective for nasal congestion due to either allergic or infectious causes."* In a major practice, it has been "an efficient nose drop which has superseded almost all others...."* More than a simple vasoconstrictor, NTz is a combination of three thoroughly evaluated ingredients.

- **N**eo-Synephrine® hydrochloride 0.5 per cent—opens engorged nasal passages, shrinks sinus ostia and provides proper breathing and drainage space.
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NTz is well tolerated by the delicate respiratory tissues. In several hundred patients treated with NTz, there were "...no deleterious effects from...frequent and prolonged use."*

NTz Nasal Spray is also useful in vasomotor (allergic) rhinitis and sinusitis. It is best used twice within five minutes. Supplied in leakproof, pocket-size, squeeze bottles of 20 ml. and in bottles of 30 ml. with dropper.

*Levin, S. J.: **Pediat. Clin. North America** 1:975, Nov., 1954.

NTz, Neo-Synephrine (brand of phenylephrine), Thenfadil (brand of thenyldiamine) and Zephiran chloride (brand of benzalkonium chloride, refined), trademarks reg. U.S. Pat. Off.

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prudently. If it is desired to withhold the minor's control of the property until he has reached a more mature age, the gift to the minor should be made in trust.

Although the gift of a future interest may be applied toward the $30,000 lifetime gift exemption ($60,000 for husband and wife), such gifts do not qualify for the $3,000 annual exclusion for each recipient. In the case of gifts to minors, the Internal Revenue Code permits an exception to the future interest rule if certain conditions are met. A gift is not treated as one of a future interest if the gift property and its income *may* be expended by or for the benefit of the minor before he attains age 21. To the extent that both are not so expended, the undistributed property and income must pass to the minor when he becomes 21. If he dies before reaching this age, they must be payable to his estate or as he may appoint under a general power of appointment.

The Uniform Gifts to Minors Act was drafted so that a gift made under a statutory custodianship can qualify for the $3,000 annual gift exclusion. If you desire to withhold control over a gift of property to a minor until he has reached a more advanced age than 21, such a gift in trust, as a future interest, cannot qualify for the $3,000 annual exclusion.

The Internal Revenue Code contains a specific provision which permits the establishment of a temporary trust, known as a short-term trust, whereby a gift may be made of the right to income from property for a period of at least 10 years or for the lifetime of the beneficiary. At the end of the period, the property is returned to the creator of the trust. The short-term trust is a useful device in transferring income-tax liability from a high-bracket to a low tax-bracket taxpayer, such as a minor child, or the trust itself if income is accumulated. This form of trust can be drawn so that the present value of the income gift to the beneficiary can qualify for the $3,000 annual exclusion as well as the lifetime exemption.

Life Insurance

The assignment of a life insurance policy is a taxable gift. There will be no gift tax if the value of the policy is less than the $3,000 annual exclusion ($6,000 for husband and wife). If desired, the excess can be charged against the unused portion of the $30,000 lifetime gift-tax exemption ($60,000 for husband and wife).

Gift of Insurance Policies

Life insurance policies which you own or which are payable to your estate are assets of your estate and subject to estate tax. Estate taxes can be avoided by having some one other than yourself own the policies. This can be done by transferring your insurance to your wife or children. It may be advisable to make the transfer of ownership to your children because if your wife dies before you do, the value of the policies will be taxable in her estate. You can continue to make premium payments and each payment is considered a gift to the owner of the policy. There will be no gift tax, however, if the premium payments amount to less than the $3,000 annual exclusion for each donee, or $6,000 if your wife joins in the gift. Also, if necessary, the lifetime exemptions of husband and wife can be used.

Jointly Owned Property

There are many ways in which property can be held jointly in different states. These are the more common forms of joint ownership with rights of survivorship:

Joint tenancy

Upon the death of one joint tenant, the entire property passes automatically to the survivor. Generally, a joint tenant may terminate joint tenancy with or without the approval of the other joint tenants.

Tenancy by entirety

This is a form of joint tenancy between husband and wife which exists in some states. Upon the death of one, the entire property passes to the survivor and neither may transfer ownership unless both join in the sale or gift. Divorce terminates tenancy by entirety and each may sell or will his or her share of the property at death.

Community property

This type of ownership exists in Arizona, California, Idaho, Louisiana, Nevada, New Mexico, Texas, and Washington. Generally, one-half of what either husband or wife earns or acquires with such earnings while married belongs to the other.

Advantages of Joint Ownership

The primary advantage of jointly owned property with rights of survivorship is that ordinarily when one co-owner dies, the surviving owner immediately and automatically becomes the full owner of the property. Thus, jointly-owned property generally bypasses the delays and expense

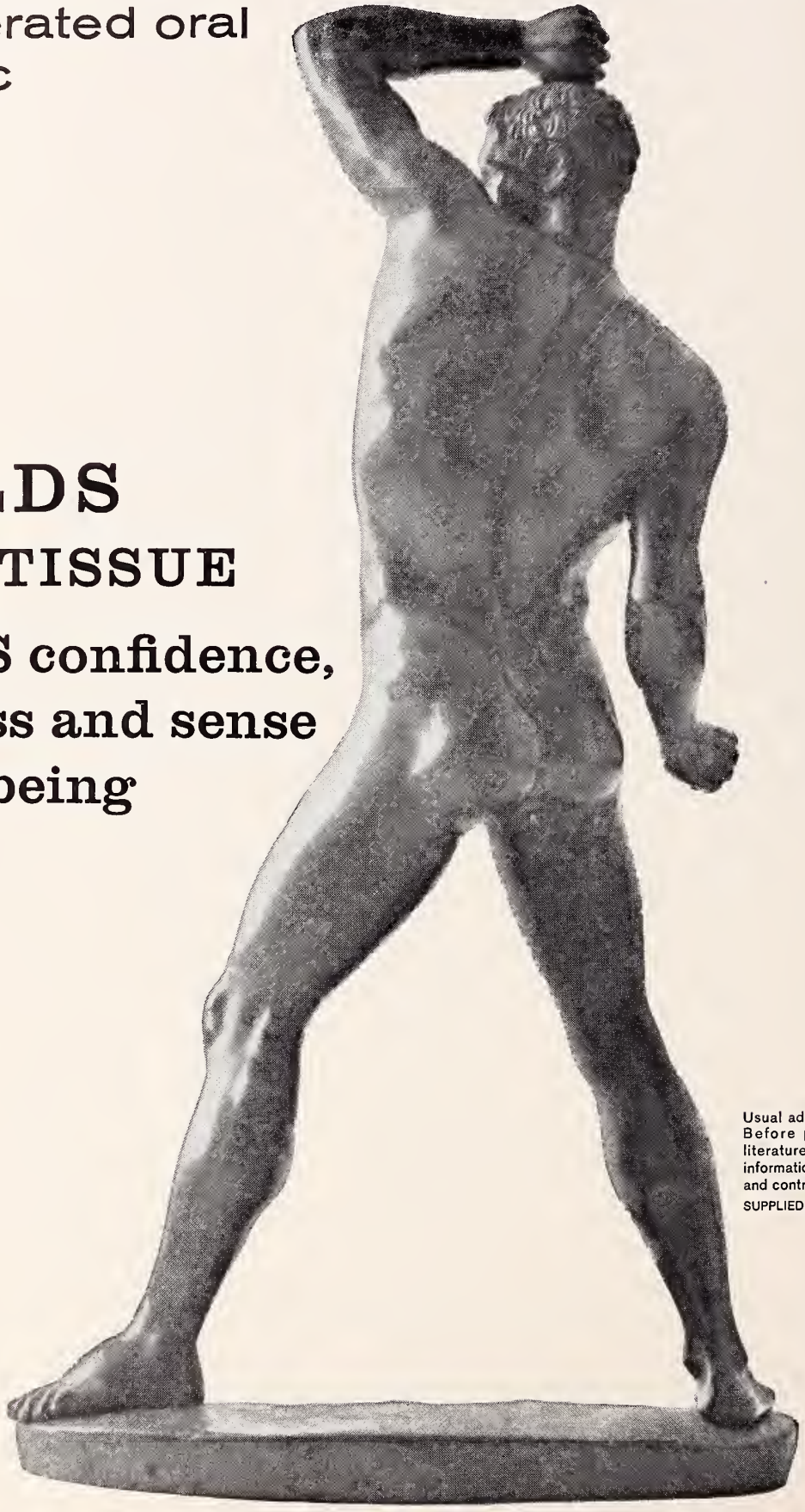
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of probate since it is not transferred by will upon the death of a co-owner. But such costs are nominal when compared to the estate taxes of a large estate.

Estate tax

If all of your property is in joint ownership, usually it will be all taxed to your estate when you die and again to your wife's estate to the extent that it is not disposed of before she dies. Property owned in joint tenancy or tenancy by entirety will be included in the estate of the first joint owner to die unless the surviving owner's contribution towards the cost can be proven.

Gift Tax

If property is transferred to you and your wife or another person as joint owners and you either own the property or supply the purchase price, there is usually a taxable gift to the extent of the interest in the property acquired by the other person. However, the tax law provides for certain exceptions. The creation of joint tenancy in real property is not treated as a taxable gift unless the donor elects to have it so treated by filing a gift-tax return. If before the death of a joint owner the tenancy is terminated, a gift will result in ratio to the original contributions which each made.

If you deposit your funds in a joint bank account with another person, this does not constitute a gift until the other person withdraws part or all of the money. The amount of the gift consists of the amount withdrawn. The same is true of U. S. Savings Bonds which you may purchase in your name and someone else's. If the other person cashes the bonds while you are alive, you have made a gift of the proceeds at that time.

When you buy U. S. Savings Bonds in joint ownership with your own funds, there is no gift until the co-owner redeems the bonds and keeps the proceeds. If you die before such bonds are redeemed, the redemption value will be included in your estate.

Community Property

Generally, one-half of the community property is included in the estate of a deceased spouse. Even though all of the community property may have been acquired with the earnings of the husband, if the wife dies first, one half will be taxed to her, and likewise if he dies first, only one-half will be taxed to his estate. The marital deduction does not apply to community property since the effect of community property laws already provides for a tax benefit equivalent to the marital deduction.

State Inheritance Taxes

Jointly owned property can also pose a problem with respect to state inheritance taxes. Although such taxes are considerably lower than federal estate taxes, they are nevertheless sufficient to warrant consideration. Where it is proven that the surviving spouse paid for the property, jointly owned property will not be subject to the federal estate tax in the estate of the deceased co-owner. Nevertheless, under the inheritance tax laws of many states, a tax is payable with respect to one-half the value of jointly held property, irrespective of which joint tenant paid for the property.

TO BE CONCLUDED

I say that if the executive cannot write his own speech, let him make none. If he is tongue-tied in public, it is because he is tongue-tied in private; he simply has nothing of significance to say. — Clarence B. Randall, "The Folk-lore of Management."



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Increased RTF promotes bronchial drainage by liquefying tenacious sputum and exerts a soothing, demulcent effect on irritated bronchial mucosa that helps reduce the frequency of dry, tickling, unproductive coughs.

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Formulas—Robitussin: Glyceryl guaiacolate 100 mg. per 5 cc. Robitussin A-C: Glyceryl guaiacolate 100 mg., Pheniramine maleate 7.5 mg., Codeine phosphate 10 mg. per 5 cc.

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Medical Economics

Know The Facts *Tell Others*

THIS IS KERR-MILLS

With the recent acceptance by the House of Delegates of the report of the Minnesota State Medical Association's Committee on Kerr-Mills Implementation, the way is now clear to draft Kerr-Mills legislation to be introduced in the 1963 Legislature. It is apparent that the mere drafting of legislation in cooperation with the Minnesota Department of Welfare is not sufficient to insure its acceptance by legislators and the public in general. It is therefore vital that doctors, legislators and the public are adequately informed about the Kerr-Mills Act — What It Is — What Its Objectives Are — How It Has Been Implemented In Other States — Its Applicability In Minnesota.

Physicians can play a key role in providing their legislators and the public with the facts. The following information has been prepared by the Committee on Kerr-Mills Implementation to assist physicians in acquainting themselves with the facts about the Kerr-Mills Act and its applicability in Minnesota.

Please take time to acquaint yourself with these facts, then discuss them with your legislators, your county commissioners, members of the county welfare board, and others who should know these facts. Remember, every doctor has a stake in the future of Kerr-Mills.

Historical Background

In 1935 Congress enacted a federal grant-in-aid program offering federal money to any state which then had, or would establish, a public assistance (welfare) program in three basic categories of need:

1. Aid to the blind (AB)
2. Aid to dependent children (ADC)
3. Old Age Assistance (OAA)

Some states took advantage of this offer immediately. Some were already well along in the development of a comprehensive welfare program. Some states, particularly the low per capita income states, had done little to meet the basic needs in these three categories, and many did little or nothing to solve their problem even after federal assistance became available.

By 1950, a fourth category was established to aid the totally and permanently disabled (ATPD). Also in that year federal financial aid to the four categories was expanded to pay for aid to recipients in public institutions.

For a number of reasons, not the least of which is the striking progress and general excellence of American medical care, our senior citizen population has increased at twice the rate of the general population. Since the lengthier and more costly illnesses strike this segment oftener, it was logical and inevitable that the Old Age Assistance (OAA) program should loom ever larger as the major area of welfare expense. Because some states have provided limited resources to deal with this mounting problem, pressure developed at the national level for Congress to "do something." Those who favor a benevolent welfare state approach to all social problems promptly devised the FORAND BILL and tried to push it through Congress twice, once in 1959 and again with no success in 1960. The recently defeated King-

Continued



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Each new Creamalin tablet contains 320 mg. of specially processed highly reactive dried aluminum gel (stabilized with hexitol) with 75 mg. of magnesium hydroxide. Minute particles offer a vastly increased surface area.

Dosage: Gastric hyperacidity—from 2 to 4 tablets as needed. Peptic ulcer or gastritis—from 2 to 4 tablets every two to four hours. *How Supplied:* Bottles of 50, 100, 200 and 1000.

Now also available—New Creamalin Improved Formula Liquid. Pleasant mint flavor—creamy pink color. Stabilized reactive aluminum and magnesium hydroxide gel (1 teaspoon equals 1 tablet). Bottles of 8 and 16 fl. oz.

Creamalin, trademark reg. U.S. Pat. Off.

*Schwartz, I. R.:
Current Therap. Res. 3:29, Feb., 1961.

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Anderson Bill was a much "watered down" version of the Forand Bill, differing chiefly from its predecessor in that payment to the practitioner rendering medical care was nearly eliminated. These bills (and those which will inevitably follow) have this in common: THEY SEEK TO ESTABLISH COMPULSORY FUNDING OF LIMITED HEALTH CARE BENEFITS FOR PEOPLE OVER SIXTY-FIVE, UTILIZING THE SOCIAL SECURITY TAX AS THE FISCAL MECHANISM.

Think back a minute to August of 1960. Both houses of Congress were solidly controlled by the Democrats. John F. Kennedy, the Democratic candidate for president, was still a U. S. senator urging his associates to make good on his campaign pledge at the Democratic national convention of "medical care for all our senior citizens under Social Security." Yet despite this compelling political pressure, that Congress repudiated this compulsory and indiscriminate welfare "bonanza." It preferred instead to liberalize the traditional federal grant-in-aid program further by enacting the Kerr-Mills Bill, which President Eisenhower promptly signed into law.

What It is

The Kerr-Mills Act comprises two parts: Part I increases the dollar amount of federal participation in the basic four relief categories (AB, ATPD, ADC, and OAA). Part II established an entirely new category of public relief for which federal funds would be granted to match state funds. This new category was called MEDICAL ASSISTANCE TO THE AGED, abbreviated "MAA." It was the intent of Congress that each state should define, by written eligibility standards of its own choice, the specific segment of its over-65 citizens who are not on relief (not on OAA), but whose limited resources are so precariously balanced that any significant illness would force them into total indigency and onto the relief rolls. This group would be designated "medically indigent." Economic logic dictated the wisdom of helping these people to pay uninsured, burdensome medical expenses instead of reducing them to the status of complete wards of the state as a consequence of illness. It is Part II of the Kerr-Mills Act, Medical Assistance to the Aged (MAA), with which we are presently concerned.

What Have Other States Done

Since the Kerr-Mills Act was signed into law in September of 1960, 24 states and 3 territories have implemented Part II, or MAA. Some have followed the intent of Congress and adopted effective implementations. Others have adopted limited eligibility requirements and benefits. Because of extreme limitations adopted in some states, proponents of the King-Anderson type of legislation assert that Kerr-Mills does not meet the need. On the other hand, many states have provided MAA implementation that is truly comprehensive in scope, and at the same time realistic in eligibility requirements. An example of a few are Massachusetts, North Dakota, and Hawaii. Others have provided programs that are not as comprehensive.

Four of the higher per capita income states, with well developed welfare programs (California, Massachusetts, Michigan, and New York), immediately implemented Part II (MAA) and promptly transferred all of their OAA recipients who were ill (most were in hospitals or nursing homes) under the new MAA category, thus gaining substantially increased federal funds. The reason for this "windfall" lies in the different mechanism for determining federal participation under the two parts of the Kerr-Mills Act. Under Part I, for the basic relief categories including OAA, a fixed dollar amount is allowed per recipient enrolled in the program. If most of this federal dollar allotment goes for food and rent, there may be little left over for health needs, and it should be recognized that there is an arbitrary ceiling imposed on federal participation regardless of how costly the total care of the recipient becomes when illness strikes. Under Part II (MAA), the federal government pledges to pay 50% of the actual administrative costs, and from 50%-80% of the actual health care dollars (the percentage depending upon the per capita income in the state). It is at once clear why more federal grant-in-aid will be received by the states under MAA than under OAA. As a result of the "switching", the four states just mentioned last year received 93% of all the federal money paid out under MAA. As a matter of fact, New York alone took 47%. Such "switching" was not the intent of Congress. The intent was rather that a new group, the medically indigent, receive the health care that this money would provide.

Continued

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THUS, THE KERR-MILLS ACT IS NEITHER GOOD NOR BAD OF ITSELF. EVERYTHING DEPENDS ON HOW IT IS IMPLEMENTED! It can be real protection for the medically indigent and an excellent answer to those who would completely federalize the health care of nearly all senior citizens. Or it can provide limited benefits and difficult qualifying rules. In that case, it would serve chiefly as a very persuasive argument against the wisdom of leaving responsibility for this group up to their respective states.

What is the problem in Minnesota?

Minnesota has one of the finest Old Age Assistance (OAA) programs in the United States. Our OAA medical care provisions are fully comprehensive, embracing the services of all licensed practitioners of healing, hospital care, nursing home, drugs, dental care, appliances, out-patient care, office and house calls, and even preventive medicine with no ultimate limitation on the duration of care. Long ago we anticipated the MAA philosophy by allowing OAA fund vendor payments for medical care to qualified senior citizens who were not yet reduced to total indigency, but were unable to meet unexpected major illness expense. These cases are called "medical care only" cases under our OAA program. This was one reason why there was little pressure for immediate implementation of Kerr-Mills MAA during the 1961 legislative session. But with additional time to survey our needs and to profit by the experiences of states who implemented MAA immediately, we are now in a good position to judge the applicability of MAA to the problem in Minnesota.

Our state has approximately 350,000 citizens over age 65. This is about 10% of the total population. Of these 350,000, 42,000 (13.7% are on relief under the OAA program. About 4,000 of these OAA recipients are under OAA for "medical care only". The latter group of people are "medically indigent" and should logically be cared for under MAA.

How many additional medically indigent cases would result from the creation of MAA? This depends entirely on the eligibility limits established at implementation. Within a few broad limits, each state determines its own definition of "medically indigent" by establishing its own eligibility requirements. The Committee on Kerr-Mills Implementation of the Minnesota State Medical Association considers the following eligibility requirements consistent with the economic background of our state:

	Single	*Married Couple Living Together*
Income	$ 1,800 year	$ 2,400
Net worth	$15,000 year	$15,000

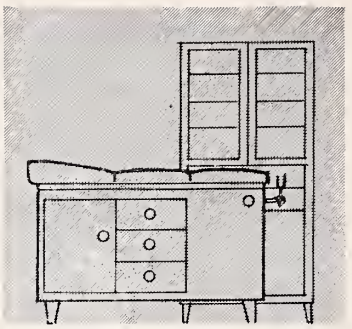
Using these two criteria, about one-third of Minnesotans over 65 years of age (approximately 118,000) would presumably be eligible for aid. (It does not seem reasonable to exempt people of this income and net worth from all financial responsibility regarding illness.) It is not the minor expense that forces them onto relief, but the major and often catastrophic illness. This is the area least covered by existent private health insurance. This area was also left almost totally unprotected by the restrictions under the Forand Bill and the King-Anderson Bill. Here, then, is the need for Kerr-Mills' MAA. After a given initial expense (or deductible amount) met out of the individual's private resources or his insurance, further debilitating expense becomes the legitimate concern of society and its government.

What should the deductible amount be per year? Welfare Commissioner Morris Hursh proposed, and our committee endorsed, a $200 per year deductible before benefits would begin under Kerr-Mills in Minnesota. It goes without saying that any implementation bill should require that benefits would not start until the total amount of any private insurance has been paid by the insurance agency involved. This would encourage individual responsibility and the widespread use of private, low premium, limited health insurance by senior citizens. At the same time, it discourages over-utilization or malingering. Most important, however, it would make it *impossible* for any senior citizen in Minnesota to be rendered totally indigent by a catastrophic illness.

What of the Social Security financing proposals for the future? In Minnesota, about 20-24% of those over 65 are not covered by Social Security in the first place. Secondly, the very situation where protection in depth is urgently needed, namely the catastrophic illness, is where all of the Social Security financed plans have

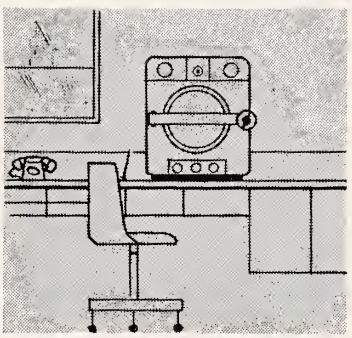
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little to offer. Their benefit period runs out just as the expense begins to become shattering. In short, Kerr-Mills Part II (MAA) is needed in Minnesota now and will be needed in the future.

What actual case load can be expected under MAA? In Massachusetts, after transferring almost all their OAA recipients over to MAA, and after eighteen months to publicize and expand the program with lenient eligibility requirements and comprehensive coverage of all health needs, the actual case load was 3.3% of the population over 65. In North Dakota, with slightly stricter eligibility requirements but a comparably excellent spectrum of complete health services covered, the utilization in March of 1962 was 1.17% of that state's senior citizen population.

Proponents of King-Anderson type legislation declaim, "You are not helping enough people." But there is another interpretation. Perhaps the need has been grossly exaggerated. In a recent "Medical Economics" article on implementation of MAA, the welfare director of North Dakota pointed out that the state was spending only $140,000 a month on a program that was originally budgeted for $5,000,000 a year! Illinois, with nearly 1,000,000 citizens over 65, budgeted $20,000,000 to run its MAA program for the year. But in the first seven months of the program, barely more than 2,000 persons were found to be medically indigent and in need of care. They haven't even dented their budget yet.

It is likely on the bases of currently available figures that the additional funds required to implement MAA will be limited in Minnesota.

Woman's Auxiliary

EFFECTIVE PRESCRIPTION FOR A COUNTY PRESIDENT

The "Distaff" of the Women's Auxiliary to the Medical Society of the State of New York has published some suggestions about county presidents. As we elect our county presidents for the new year, it might be wise to heed some of the "Distaff's" timely suggestions.

A good president, says the "Distaff":

1. Tries to feel the pulse of the membership, and lead them in the right direction without their knowledge.
2. She keeps informed on all auxiliary activity and informs her members.
3. She takes full advantage of the ability of her executive committee and the chairmen of the auxiliary.
4. She prepares an agenda for her meetings with the following order of business:
   - Check Quorum
   - Call the meeting to order
   - Prayer, invocation, or auxiliary pledge
   - Roll Call
   - Have minutes of previous meeting read by recording secretary
   - Correspondence by corresponding secretary (if there is one), otherwise recording secretary
   - Treasurer's financial report
   - Reports (officers, standing and special committee)
   - Unfinished business
   - New Business
   - Program (the chair does not turn the meeting over to anyone, she introduces the person who represents the program)
   - The chair thanks the speaker, announces the date, time, and place of the next meeting
   - The chair (Pres.) leaves a brief inspiration with the group
   - Adjournment (the chair may adjourn the meeting without asking for a motion to adjourn)

For Presidents, the "Distaff" recommends twelve things to remember:

1. The value of time
2. The success of perseverance
3. The pleasure of working
4. The dignity of simplicity
5. The worth of character
6. The influence of example
7. The power of kindness
8. The value of knowledge
9. The obligation of duty
10. Virtue of patience
11. Improvement of talent
12. Joy of originating

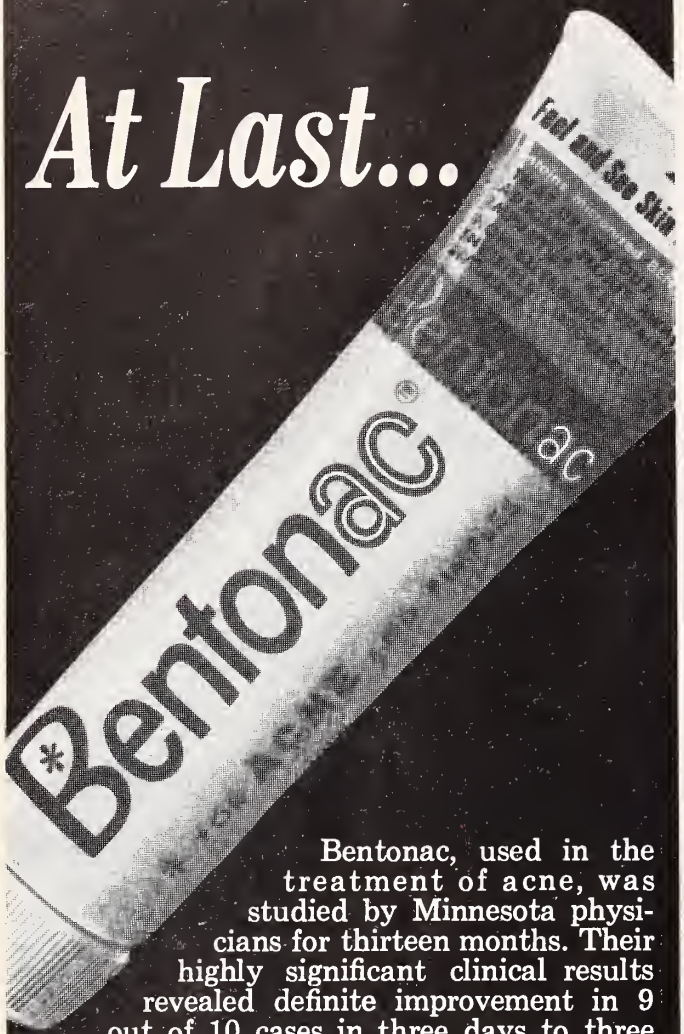
PLAN NOW TO ATTEND

The Mid-Winter Board Meeting will be held on January 22, 1963 at the Hotel St. Paul.

This meeting is a particular **must** for all county presidents, regional advisers, and state chairmen.

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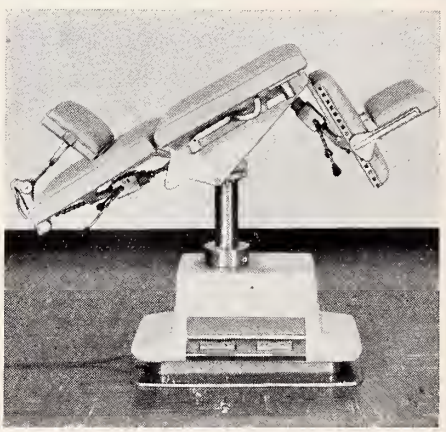
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The Blue Shield

Blue Shield Has Built In Escalator Clause

Medical Care Plans in existence today are of three distinct types — the cash indemnity benefit type, the service benefit type, and the type which combines both into a program with "escalator" characteristics. Minnesota Blue Shield falls into this latter category.

The indemnity approach pays set fees toward physicians' charges. The service benefit approach, or paid-in-full concept pays fees which participating physicians, by written agreement, guarantee they will accept as final compensation without qualifications. A combination plan uses medically approved fee schedules which represent amounts physicians agree to accept as final payment for persons within given income brackets. For persons over those income brackets — the fee payment then represents an indemnity allowance.

A-Plan with service benefits geared to one or more income categories plus indemnity allowances for over-income people, provides participating physicians with a built-in escalator clause to keep up with inflationary trends. It also offers better protection to the buyer because it reflects the medical profession's practice of charging in accordance with ability to pay.

With few exceptions, a person's earned income determines his ability to pay. To get the new M-Series paid-in-full benefits, Minnesota Blue Shield now offers coverage at three different income levels — each with the same scope of benefits. However, the subscription rates and the fee schedules are geared to the three different income levels. These plans are the M-42 for families with an annual income of less than $4,200; M-60 for families with an annual income between $4,200 and $6,000; M-75 for families with an annual income between $6,000 and $7,500. M-75 is recommended to families with annual incomes in excess of the $7,500. However, regardless of which plan is selected, any family with an annual income in excess of the plan purchased gets only indemnity protection. Only those families with incomes less than the amount stated in their contract get paid-in-full service benefit protection.

The freedom of choice of these three Blue Shield Plans makes it possible for most buyers to choose a program which fits their incomes. Should inflation follow its predicted schedule, by 1971 the average family income will be $9,200; the average in 1961 was $7,020. Therefore, by proper selection, a great number of Minnesota families today can purchase service benefit protection which will give them predictability in their medical care costs. However, since the choice is voluntary, a subscriber may choose a lesser plan than his actual income category would dictate. In this instance, the person has elected to coinsure his medical care costs by purchasing an indemnity plan.

The three different fee schedules and the subscription rates of the three plans which Blue Shield offers should remain reasonably stable. Yet, in this "escalator" system, participating physicians are protected against the dangers of static fees in an inflationary economy.

Let's analyze this statement: Is it fair for Blue Shield fees to remain stable if everything else goes up? Aside from minor fee discrepancies, which should be corrected when they are noted,

Continued



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the basic fees, when carefully conceived by the medical profession for a family within a given annual income bracket, should remain unchanged as long as the income limits in the Blue Shield contract remain unchanged. Surely we are agreed that this is only fair because the family which truly suffers in an inflationary spiral is the one with a fixed income. Fortunately, not too many families find themselves in this position and will progress up the scale from one income level to the next. But, for those who do, it is providential that the doctors have made it possible for their medical costs to remain constant. A fundamental Blue Shield principle then is: *Rates and fees should remain constant when related incomes remain constant.*

This is how the subscriber is protected. It is now proper to ask the question: If fees remain constant, how is the medical profession protected during an inflationary period?

During an inflationary period, the dollar loses its value. Prices go up and the purchase of any commodity requires a greater number of dollars. Since labor is a "commodity" and therefore wages and salaries also rise during an inflationary period, families in general find themselves enjoying greater dollar income. However, the family with a static income during such a period is generally one living on a retirement income.

In this kind of a situation it is agreed that a doctor — like anyone else — finds that his costs are mounting also and he must either increase his practice, or increase his charges. This is understandable, but the important point here is: The doctor should meet his revenue requirement by raising his charges against the over-income Blue Shield members — not against Blue Shield. They are the ones who have greater incomes — not the Blue Shield organization itself. Blue Shield's rates to its members — for a plan at a given income level — should change only to keep pace with changes in medical practice and the incidence of utilization. The plan, therefore, is unable to pay greater fees across the board than those origninally agreed upon for a set in-income bracket.

The way the "escalator clause" works in an inflationary period is for Blue Shield to market new plans with higher income limits to keep pace with rising costs and wages. This Minnesota has done. Subscribers — who previously were eligible for the service benefits of the $5,000 Plan who now receive extra charges because they earn $7,000 — can once again avail themselves of paid-in-full service benefit protection by paying the additional subscription charge for membership in the higher benefit M-75 Blue Shield Plan.

These economic facts must be fully understood, for they are the cardinal principles to be considered whenever fee schedule changes are considered. The automatic safety valve built into the service benefit concept employed by Blue Shield releases the doctor from fixed fees during an inflationary period, because as it progresses — fewer and fewer members qualify under their old income limits and they must make an upward change to maintain service benefit protection.

Participating doctors are not required by their agreement with Blue Shield to accept as final payment fees which are sub-standard for subscribers who have selected coverage below their current income. Blue Shield's economic purpose is to be flexible and to accommodate changes as they develop. However, freedom of choice is not to be denied when individuals deliberately choose to buy short on their health-care protection.

One ought, every day at least, to hear a little song, read a good poem, see a fine picture, and, if it were possible, to speak a few reasonable words.—Elective Affinities.

Truth is truth to the end of reckoning. — Shakespeare



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In Memoriam

RICHARD WM. P. ACHOR

Dr. Richard W. P. Achor, 40, consultant in medicine at the Mayo Clinic and assistant professor of medicine at the Mayo foundation, died in St. Mary's hospital on November 26. He was born at Woodburn, Oregon and obtained his medical degree at the University of Oregon Medical School.

He was a member of the Olmsted-Houston-Fillmore-Dodge Medical Society, Minnesota State Medical Association and the American Medical Association.

He is survived by his wife and three children.

WILLARD R. PECK

Dr. Willard R. Peck, 51, St. Paul anesthesiologist, died December 7 at Miller hospital. He was born at Falls City, Nebraska and received his degree in medicine from the University of Nebraska College of Medicine.

He was a member of the American Society of Anesthesiologists, Ramsey County Medical Society, Minnesota State Medical Association and American Medical Association. Dr. Peck was also a lieutenant commander in the navy retired reserve.

He is survived by his wife, three daughters, and a son, Dr. James W. Peck of Kearney, Nebraska.

WINSLOW C. CHAMBERS

Dr. Winslow C. Chambers, 85, one of Minnesota's pioneer physicians died November 8th at the Blue Earth Community hospital. He was born at Owatonna, Minnesota and received his degree in medicine from the University of Minnesota.

Dr. Chambers was a past president of the Blue Earth Valley Medical Society, vice president of the Minnesota Tuberculosis and Health Association, chief examiner of the Blue Earth County draft board, member of the state board of health, past chairman of the Blue Earth County chapter of American Red Cross, Faribault county health officer, twenty-five years a member of the school board, past vice president of the Blue Earth State Bank, and an organizer of the American Legion Post in Blue Earth and its first commander. He helped organize the Kiwanis club in Blue Earth and was its first president. Dr. Chambers was one of the founders of Blue Cross in Minnesota, and a life and 50 Club member of the Blue Earth Valley Medical Society and Minnesota State Medical Association. Dr. Chambers was also a member of the American Medical Association.

He is survived by two sons and a daughter.

GEORGE C. H. ERNEST

Dr. George C. H. Ernest, former head of the medical department of Swift & Co., South St. Paul, died in Lakeland Florida, October 18th, at the age of 81. Doctor Ernest was born at Brownstown, Indiana and obtained his medical degree at the University of Kansas.

Active in professional, civic, religious and social organizations, he was a life member and 50 Club member of the Ramsey County Medical Society and the Minnesota State Medical Association. Dr. Ernest was also a member of the American Medical Association, Mizpah Lodge, A.F.&A.M., Shriners, Scottish Rite, Eastern Star and South St. Paul Kiwanis club. He formerly practiced with Lowe, Ernest and Lowe in South St. Paul as an eye-ear-nose and throat specialist.

Dr. Ernest is survived by his wife.

ARCHIBALD LEETE McDONALD

Dr. Archibald Leete McDonald, 82, veteran Duluth physician and surgeon, died November 18th. He was born at Grand Forks, N.D. and received his medical degree at Johns Hopkins University.

He was the founder of the St. Louis County Medical Association and organizer of the Department of Anatomy and Physiology at the medical school of the University of North Dakota. Formerly he was chief of staff for St. Luke's Hospital in Duluth and was medical director for Memorial Hospital. Dr. McDonald was a fellow of the American College of Surgeons, a former director of the Duluth Free Dispensary, former director of Miller Memorial Hospital, former president of the Interurban Academy of Medicine and the Western Surgical Association.

He was a life and 50 Club member of the St. Louis County Medical Society and Minnesota State Medical Association and a member of the American Medical Association.

He is survived by his wife.

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Conference Headquarters — Roosevelt Hotel
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GUEST SPEAKERS

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Dermatology
Henry J. Tumen, M. D., Philadelphia, Pa.
Gastroenterology
Logan T. Robertson, M. D., Asheville, N. C.
General Practice
Andrew A. Marchetti, M. D., Washington, D. C.
Gynecology
Raymond D. Pruitt, M. D., Houston, Tex.
Internal Medicine
Paul S. Rhoads, M. D., Chicago, Ill.
Internal Medicine
C. H. Hardin Branch, M. D., Salt Lake City, Utah
Neuropsychiatry
J. Robert Willson, M. D., Philadelphia, Pa.
Obstetrics
James I. Moore, M. D., Baltimore, Md.
Ophthalmology
James E. Bateman, M. D., Toronto, Ont., Can.
Orthopedic Surgery
Joseph H. Ogura, M. D., St. Louis, Mo.
Otolaryngology
Edward A. Gall, M. D., Cincinnati, Ohio
Pathology
Weston M. Kelsey, M. D., Winston-Salem, N. C.
Pediatrics
Curtice Rosser, M. D., Dallas, Tex.
Proctology
Ted F. Leigh, M. D., Atlanta, Ga.
Radiology
John L. Keeley, M. D., Chicago, Ill.
Surgery
John L. Madden, M. D., New York, N. Y.
Surgery
Edwin P. Alyea, M. D., Durham, N. C.
Urology

Additional guest speaker to be announced

Lectures, symposia, clinicopathologic conferences, round-table luncheons, medical motion pictures, technical exhibits and entertainment for visiting wives.

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For information concerning the Assembly meeting and the tour write Secretary, Room 105, 1430 Tulane Avenue, New Orleans 12, La.

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Meetings and Announcements

FEBRUARY

American College of Surgeons Sectional Meeting, February 11-13 Queen Charlotte Hotel, Charlotte, North Carolina. Contact: Dr. W. E. Adams at the College in Chicago.

UCLA School of Medicine will offer three international clinical postgraduate programs as follows: February 20-March 2 in Mexico City; March 16-April 7 in Israel and Greece; April 12-May 4 in Japan and Hong Kong. Contact the University.

Sioux Valley Medical Association meeting in Sioux City, Iowa, February 20-22 at the Lutheran Hospital and Sheraton Martin Hotel. Contact the Association in Sioux City, Iowa.

Medical College of Georgia postgraduate course "Growth & Development—Management of Common Behavior Disturbances"—February 12-14 Augusta, Georgia. Contact: Claude-Starr Wright, M. D.; Medical College of Georgia.

American College of Chest Physicians Seventh International Congress, New Delhi, India, February 20-24. Contact: Murray Kornfeld; 112 E. Chestnut; Chicago.

University of Colorado Medical School postgraduate course "Management of Trauma" February 27-March 1 in Denver. Contact: University.

University of Iowa postgraduate conference "Refresher Course for the General Practitioner" February 12-15. Contact: John Gius, M. D.; College of Medicine, Iowa City.

MARCH

American College of Allergists Graduate Course and Nineteenth Annual Congress, March 24-29, Americana of New York, New York. Contact: John Gillaspie, M.D., 2141 14th St., Boulder, Colorado.

American College of Surgeons Sectional Meeting, Pittsburgh, Pa. March 11-14 at the Penn-Sheraton. Contact: Dr. W. E. Adams at the College.

Department of Otolaryngology, University of Illinois College of Medicine postgraduate course in laryngology and bronchoescophagology March 18-30. Contact the Department at the College in Chicago.

Medical College of Georgia postgraduate course "Gynecology Problems in Private Practice, March 12-14, Augusta, Georgia. Contact: the College.

New Orleans Graduate Medical Assembly, March 4-7, Roosevelt Hotel, New Orleans, Contact: The Assembly, 1430 Tulane Ave., New Orleans.

American Industrial Health Conference, March 18-21, Washington, D.C. Contact: The Conference, 55 E. Washington, Chicago.

American Medical Association Medicolegal Symposium, Americana Hotel, Miami Beach, March 8-9. Contact: C. Joseph Stetler, AMA.

ANNOUNCEMENTS

Formation of a Physicians Medical Musical Society of America to perform classical symphonic, chamber and choral music under direction of leading conductors. Contact: Doctors' Musical Society, 1025 Walnut St., Philadelphia, Pa.

* * *

National Geriatrics Society Second Annual Essay Contest "Relationship to Geriatric Institutions to Community Life." Deadline: March 15, 1963. Contact: Joseph Enos, M.D., 38650 Mission Blvd., Niles, California.

* * *

University of Minnesota medical continuation courses; February 4-8 Internal Medicine; February 11-16 Neurology, March 1-2 Neurosurgery, March 15-16 Trauma. For further information write 1342 Mayo Memorial, University of Minnesota, Minneapolis.

* * *

American College of Physicians postgraduate courses offered:

January 21-25—Diseases of the Blood Vessels and Thromboembolism—Cornell University Medical College and New York Hospital, New York.

February 11-15—"Modern Physiological Concepts of Cardiovascular Disease," Presbyterian Medical Center, San Francisco, Calif.

March 4-8—"Physical Methodology in Medical Research," Massachusetts Institute of Technology, Cambridge, Mass.

March 18-23—"Recent Advances in Cardiovascular Diseases," The Mount Sinai Hospital, New York, N.Y.

* * *

Next examination for Certification in Occupational Medicine will be held March 16-18. Sheraton-Park Hotel, Washington. Applications for certification should be sent to Tom Whayne, M.D.; 4219 Chester Ave.; Philadelphia.

* * *

Next scheduled examination (Part II) oral and clinical of the American Board of Obstetrics and Gynecology will be held at Edgewater Beach Hotel, Chicago, April 29-May. Notices will be sent candidate of exact time.

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Physician's Diary

Dr. L. E. Prickman, emeritus head of a Mayo Clinic section of medicine, has been named consultant in internal medicine and allergy to the Veterans Administration. Dr. Prickman just returned with Mrs. Prickman from a trip to Honolulu.

* * *

At its annual meeting, the Zumbro Valley Medical Society elected the following new officers: **Dr. C. H. Hodgson,** president-elect; **Dr. E. W. Johnson, Jr.,** vice president; **Dr. G. Roy Diessner,** secretary-treasurer, and **Dr. Robert E. Fricke,** executive-secretary.

* * *

Dr. James K. Heid of Little Falls has been appointed to the community board of mental health of the Northern Pines Mental Health center, and **Dr. Wallace R. Anderson,** Austin Clinic pediatrician, has accepted an appointment at the University of Minnesota Student Health Service.

* * *

Dr. John W. Clarke was re-elected chief of staff at the Waconia Community Hospital at a recent meeting of the staff. **Dr. Charles N. Bean** is vice chief of staff and **Dr. Paul Gilles** was elected secretary-treasurer.

* * *

New Locations: **Dr. Vincent Ryding** has returned to Mountain Lake to resume general practice of medicine . . . **Dr. Russell A. Thompson** of Minneapolis will become associated with **Dr. Stanley S. Chunn** in Willmar . . . **Dr. James Rud** of Buffalo Lake will take a residency in training in pathology at Mercy Hospital, Des Moines . . . **Dr. Lawrence A. Farber, M.D.** of New York State is practicing medicine in Coon Rapids and is associated with the Minneapolis Clinic of Psychiatry and Neurology.

* * *

Dr. Frances E. Schaar of Minneapolis has captured the sixth prize in the business division of the 4th Minox Photo Contest and was selected from over 8,000 entries of amateur and professional users of the Minox camera.

* * *

Dr. Doreen Martin of Pepin, Wisconsin, is the new president of the Wabasha County Medical Society. **Dr. H. C. Habein** of Wabasha is vice president, and **Dr. D. G. Mahle** of Plainview was elected secretary-treasurer.

* * *

Dr. C. A. Good of the Mayo Clinic was re-elected secretary of the American Roentgen Ray Society at its recent meeting in Washington, D.C.

Dr. Lawrence W. McIver was named president-elect at the annual meeting of the Edward H. Anglo Society of Orthodontia and will assume duties as president of the Society in 1964. Dr. McIver is the first to be named to this honor in this area.

* * *

Dr. L. O. Underdahl, head of a section of medicine, was elected president and **Dr. D. C. Campbell,** also head of a section of medicine, was chosen president-elect of the staff of the Mayo Clinic at the annual meeting. **Dr. P. R. Lipscomb** was elected vice president: **Dr. C. B. Holman,** secretary, and **Drs. B. E. Douglass** and **D. C. Utz,** consultants.

* * *

Dr. Richard E. Bartman, director of children's mental health services for the Minnesota Department of Public Welfare's medicial services division, spoke recently in Worthington. This is one of nine regional town meetings being scheduled to inform citizens of the state's program for mentally retarded and its needs for the future.

* * *

Dr. Homer D. Venters, Jr., assistant professor at the University of Minnesota, was named to the Ancker pediatrics post (director of pediatrics) and **Dr. Gilbert Ross,** a member of the University hospitals neurology division, was appointed chief neurologist.

* * *

A plaque honoring the late **Dr. Wade R. Humphrey** who practiced medicine in Stillwater 51 years was unveiled in Lakeview Memorial hospital recently. Dr. Humphrey was a leader in establishing the physician's assistance fund which aids needy physicians and their wives or widows.

* * *

Dr. Robert R. Kierland, head of the section of dermatology of the Mayo Clinic, was elected president of the American Academy of Dermatology at its annual meeting.

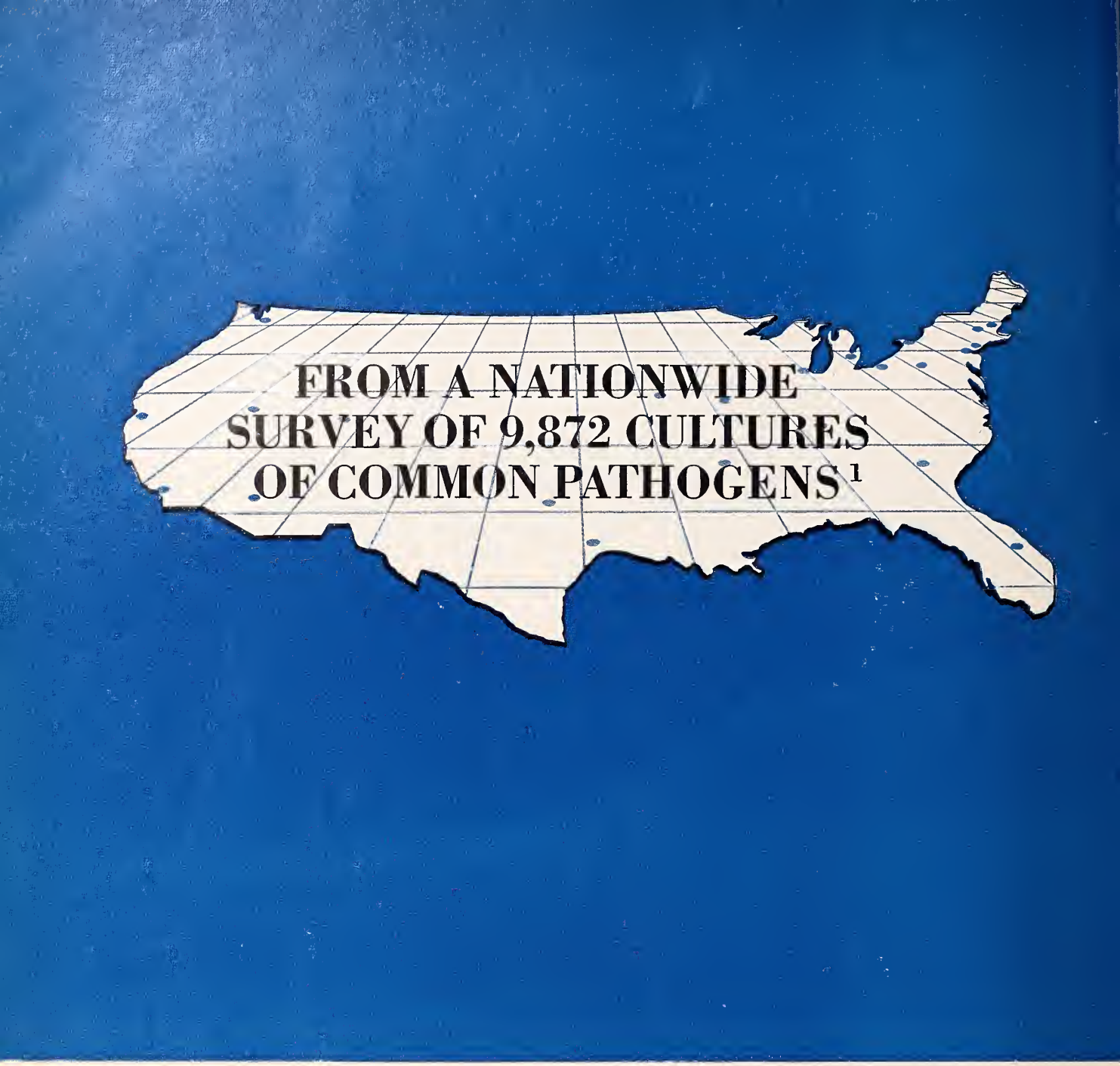
* * *

Dr. Robert T. Collins has been elected chief of staff and president of the medical staff of the New Roseau Area hospital.

* * *

Dr. Tague Chisholm, Minneapolis pediatrics surgeon, spoke in St. Cloud on the "'Hazards of Childhood."

* * *

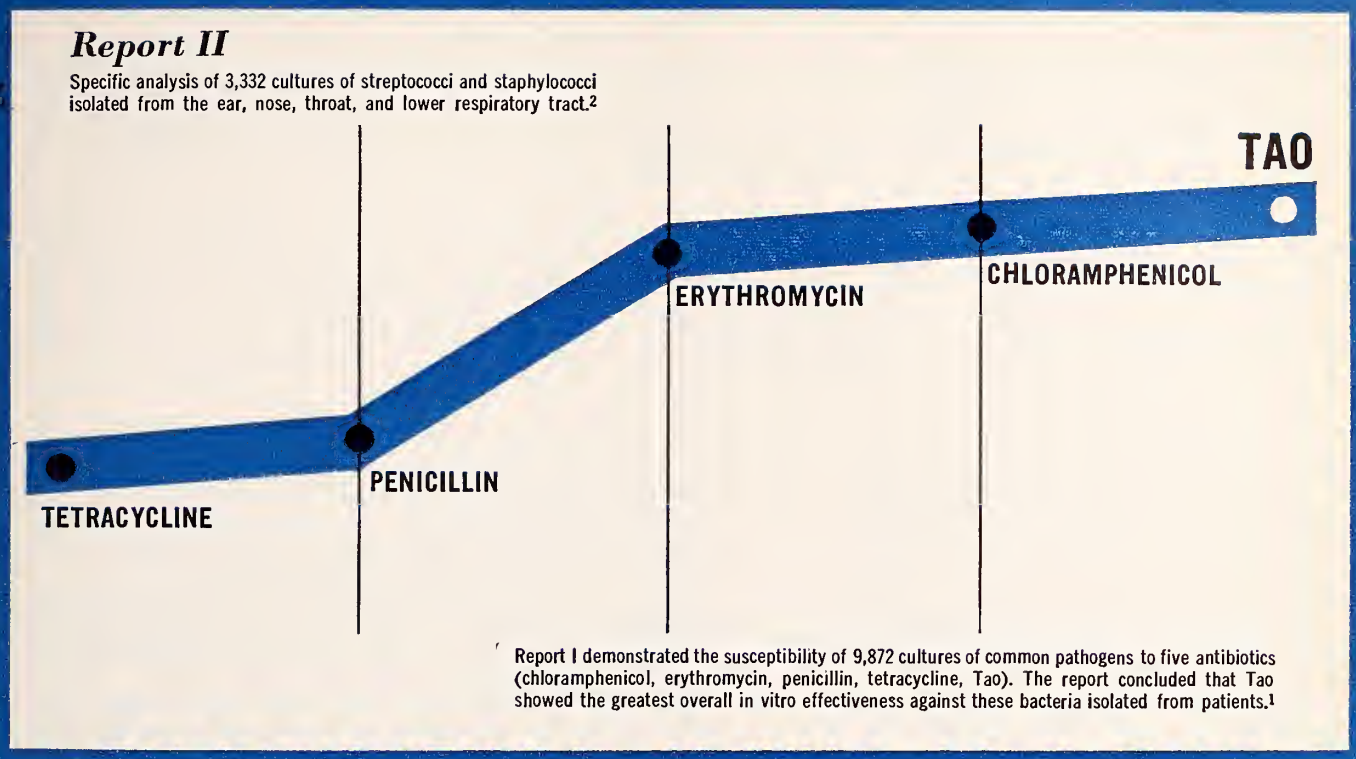


Conclusions of Nationwide Survey: *Report I*

1. Even after five years of general use, Tao, of the antibiotics tested, demonstrated greatest activity against respiratory streptococci and staphylococci (3,332 cultures).

2. Overall results showed a higher percentage of susceptibility among these common pathogens to Tao than to the other antibiotics. Susceptibility to Tao was greatest, not only in respiratory streptococci and staphylococci, but also in these organisms isolated from skin and soft tissue (3,423 cultures), genitourinary and gastrointestinal tracts and other sources (2,458 cultures). Susceptibility was equal to all antibiotics tested in pneumococci from unspecified sources (463 cultures), and less to Tao in H. influenzae from unspecified sources (196 cultures).

3. Tao has been used for five years without development of predictable cross resistance. In 1958 and 1961, approximately 73% and 70%, respectively, of erythromycin-resistant problem staphylococci showed susceptibility to Tao.[3,4] The present study confirms the continuing high degree of Tao activity even against these pathogens. Of 1,592 cultures of erythromycin-resistant staphylococci, 68% were susceptible to Tao, while in the reverse situation, only 33% of 768 Tao-resistant staphylococci were susceptible to erythromycin.



Report II

Results of Bacterial Susceptibility in 3,332 Respiratory Pathogens

References

1. "Bacterial Susceptibility Patterns: A Geographic Survey." Fowler, J. Ralph, M.D., and Watters, John L., M.D. Scientific Exhibit presented at the Annual Meeting of the American Society of Clinical Pathologists, Chicago, Ill., August 31 to September 9, 1962. 2. Fowler, J. Ralph, Watters, John L. and Levy, Arthur M.: Bacterial Susceptibility Patterns as Related to Geographic Variation and Anatomical Source. In press. 3. English, A. R., and Fink, F. C.: Antibiot. & Chemother. 8:420 (Aug.) 1958. 4. English, A. R., and Fink, F. C.: Antibiot. and Chemother. 11:648 (Oct.) 1961.

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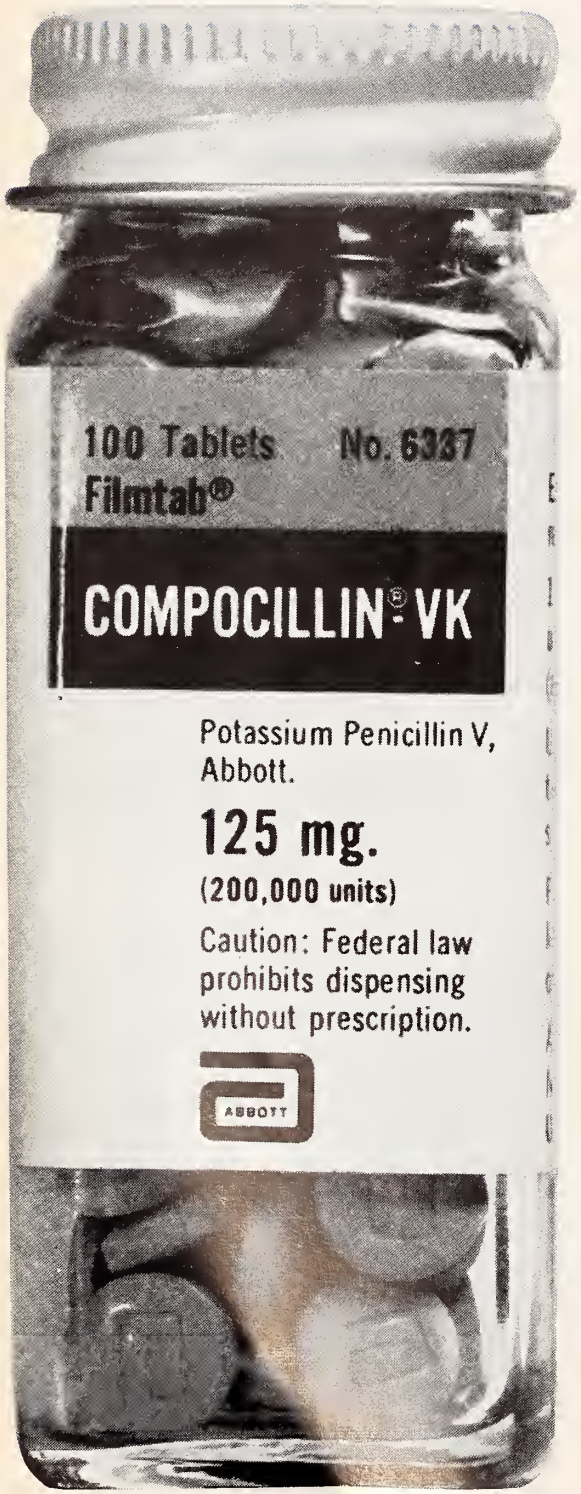
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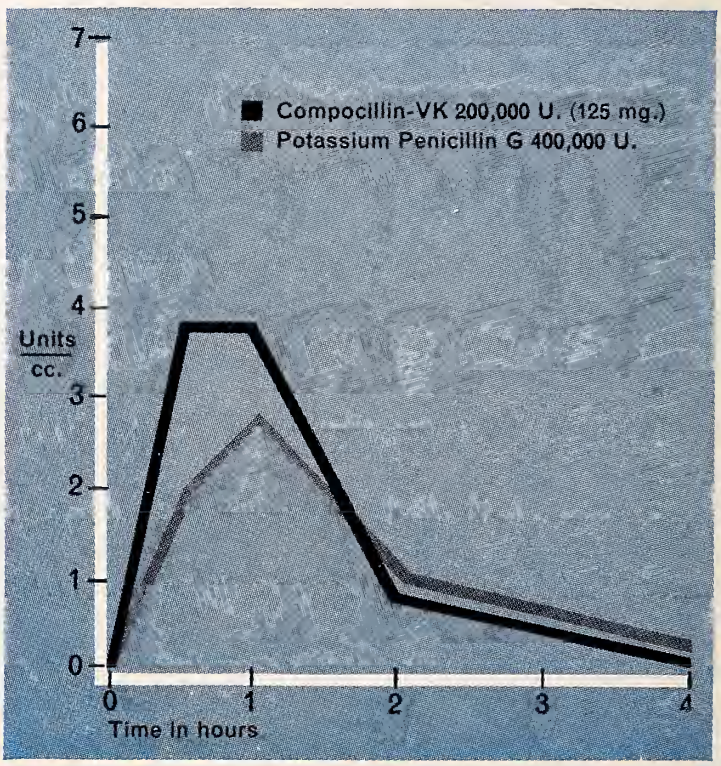
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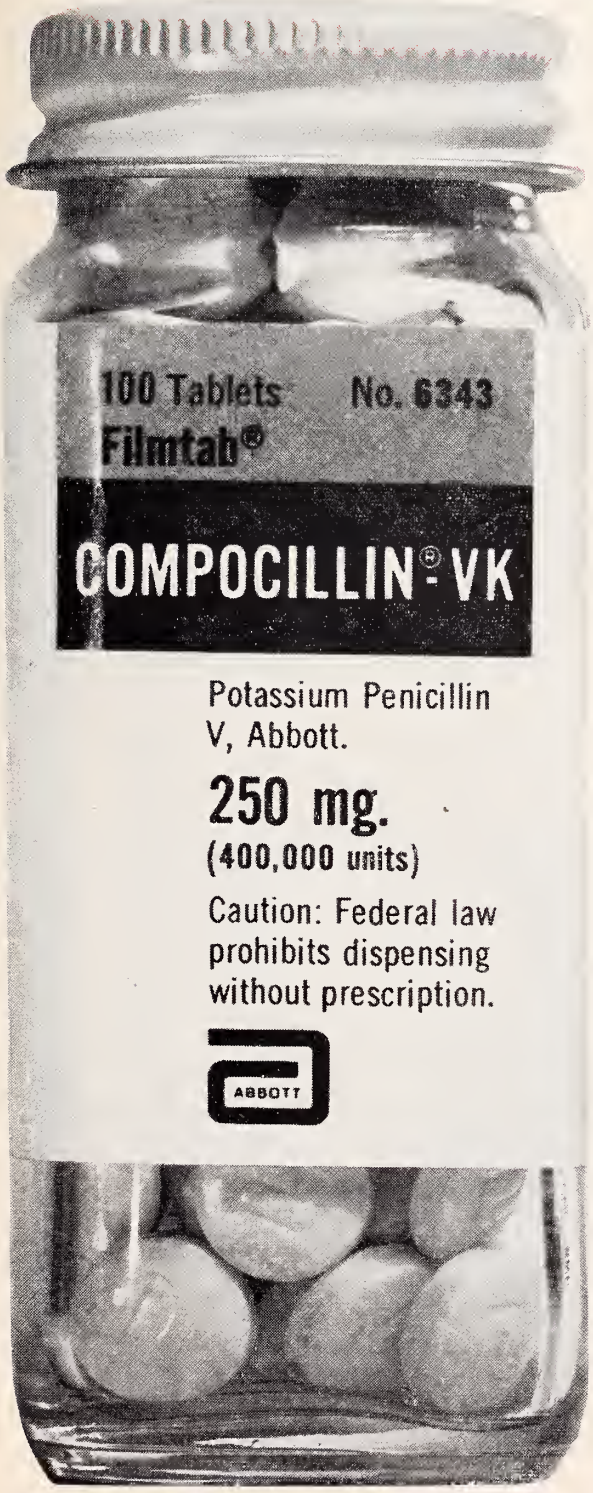
Consider milder bacterial infections

An example might be a respiratory infection. Here economy could be a definite factor in your thinking. In the chart above, you'll see that 200,000 units (125 mg.) of Compocillin VK produces blood levels at least equal to those obtained with 400,000 units of oral penicillin G potassium. This means that in less severe infections, Compocillin-VK may be given at *half* the dosage needed with oral penicillin G—with no sacrifice in blood levels. In these cases, the cost of Compocillin-VK therapy will be no more—and often will be less—than treatment with oral penicillin G.

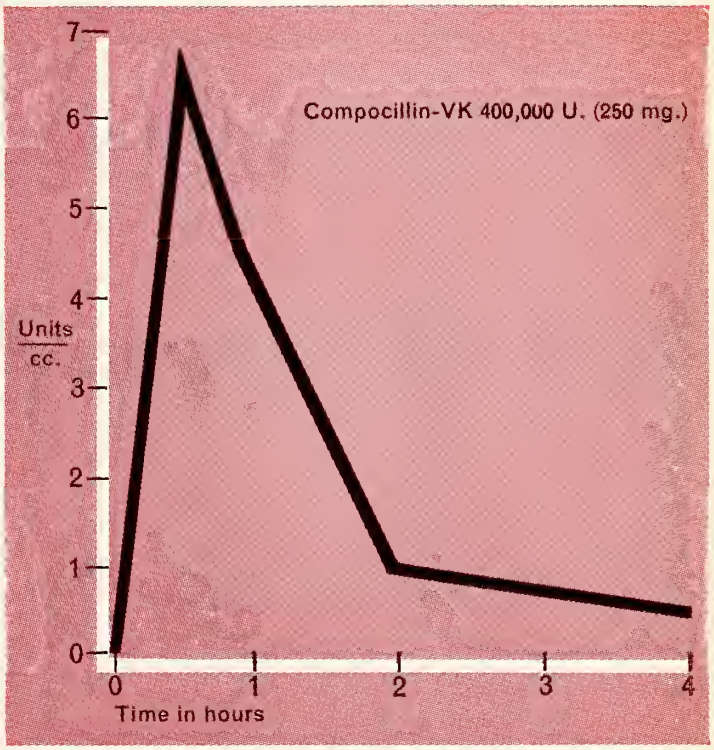
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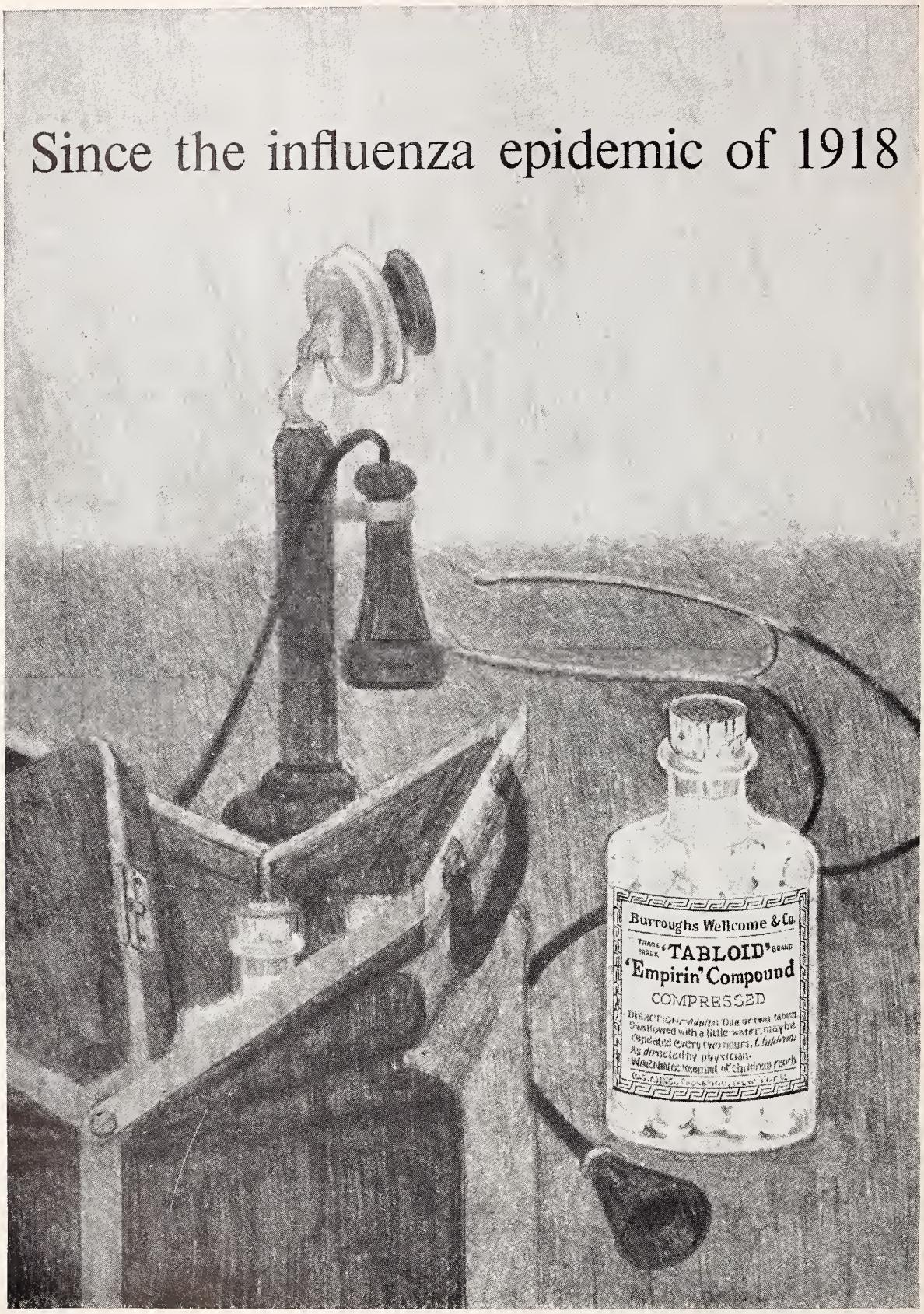


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*Chart data from two separate studies completed by the Microbiologic and Medical Departments of Abbott Laboratories.

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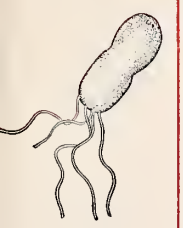


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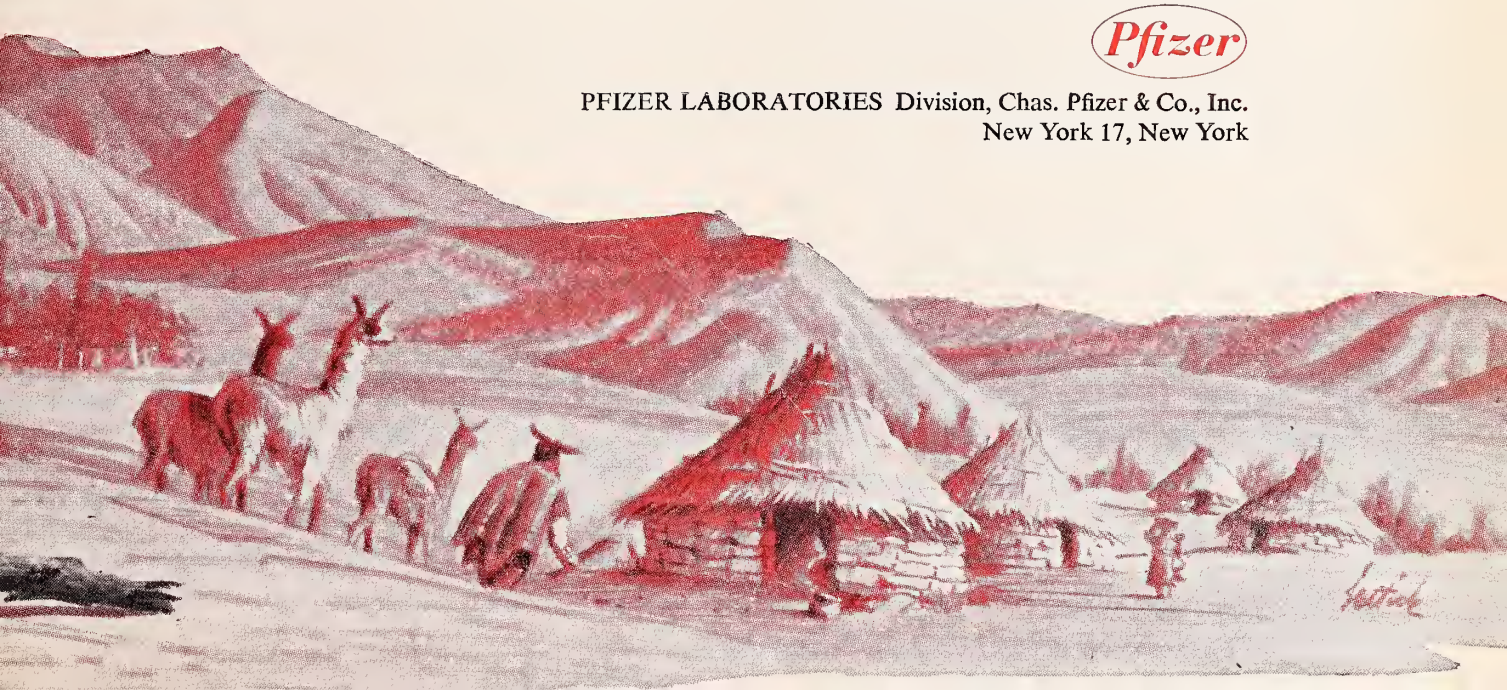


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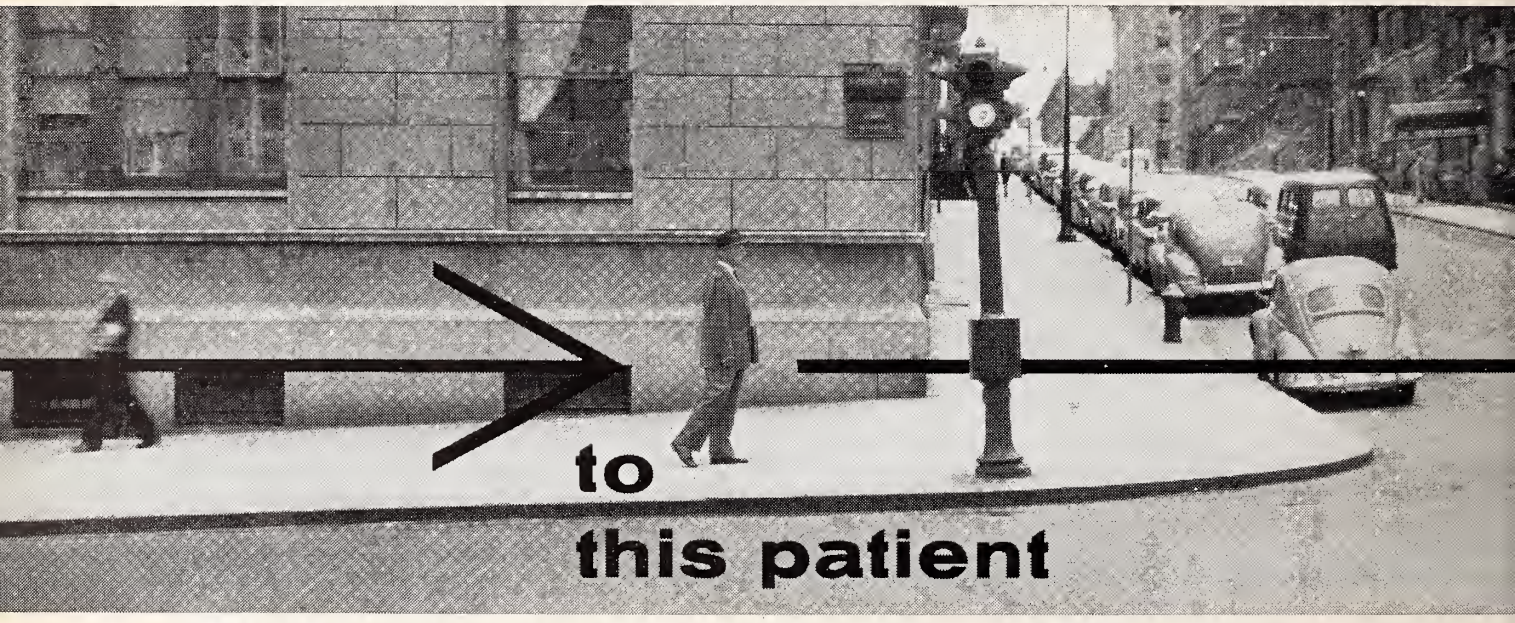
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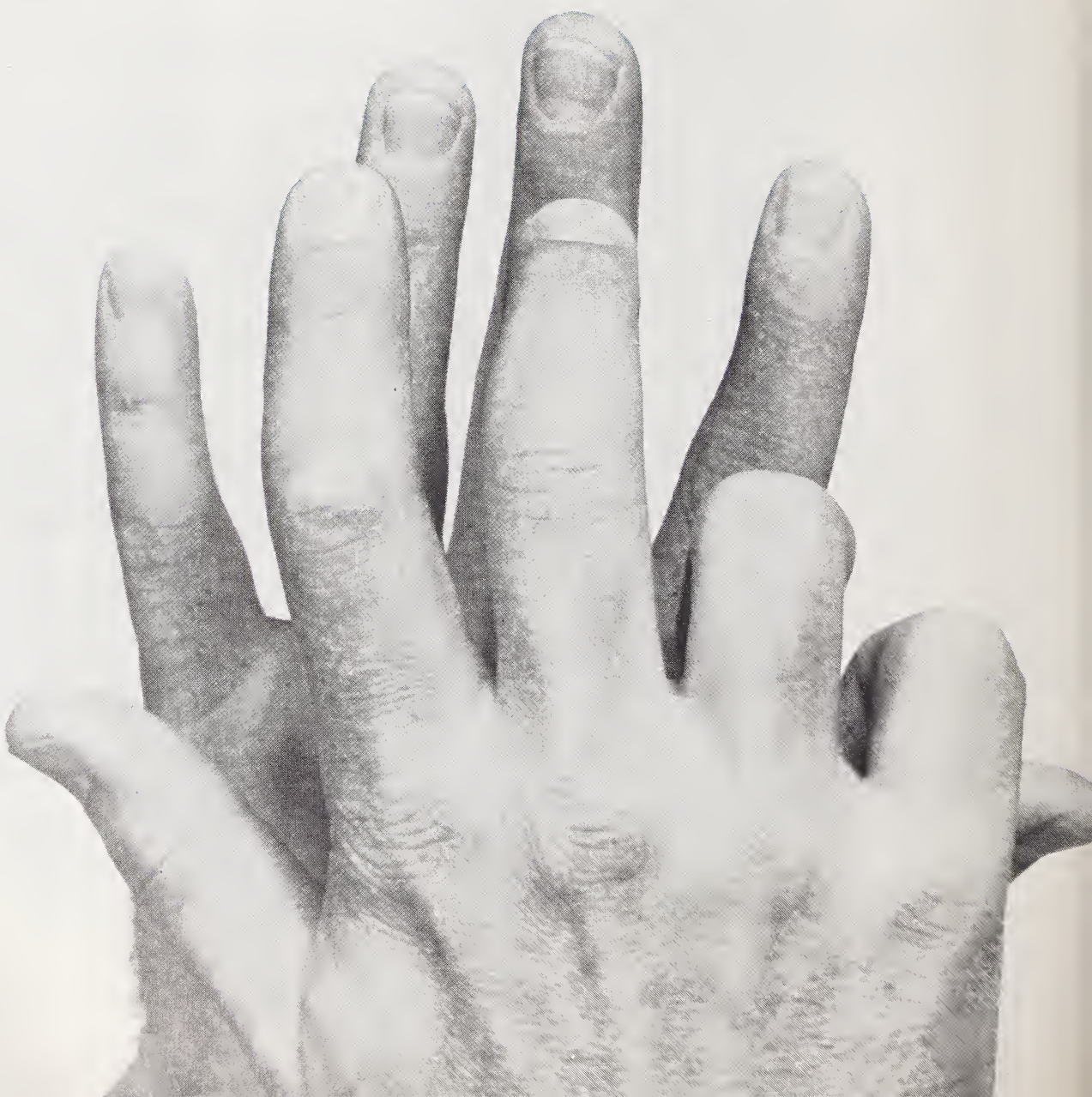
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References: (1) Thacher, H. C., & Fishman, L.: *J. Maine M. A.* **52**:84, 1961. (2) Hopkins, E. W.: *Postgrad. Med.* **29**:451, 1961. (3) Hall, W. H.: *M. Clin. North America* **43**:191, 1959. (4) Krugman, S.: *Pediat. Clin. North America* **8**:1199, 1961. (5) Ede, S.; Davis, G. M., & Holmes, F. H.: *J.A.M.A.* **170**:638, 1959. (6) Wolfsohn, A. W.: *Connecticut Med.* **22**:769, 1958. (7) Calvy, G. L.: *New England J. Med.* **259**:532, 1958. (8) Hendren, W. H., III, & Haggerty, R. J.: *J.A.M.A.* **168**:6, 1958. (9) Cutts, M.: *Rhode Island M. J.* **43**:388, 1960. (10) Berman, W. E., & Holtzman, A. E.: *California Med.* **92**:339, 1960. (11) Vetto, R. R.: *J.A.M.A.* **173**:990, 1960. (12) Sia, C. C. J., & Brainard, S. C.: *Hawaii M. J.* **17**:339, 1958. (13) Rosenthal, I. M.: *GP* **17**:77 (March) 1958. (14) Gaisford, W.: *Brit. M. J.* **1**:230, 1959.

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Volume 46

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President's Letter

THE KERR-MILLS ACT
What it is and why its implementation in Minnesota is desirable

In discussions with physicians from various locations in the State, I find that there are many who lack definite knowledge of the provisions of this Act and what its implementation in Minnesota will provide.

Part I of The Kerr-Mills Act increases the dollar amount of federal participation in the four basic relief categories:—Old Age Assistance —Aid to the Blind—Aid to Dependent Children and Aid to the Permanently Disabled. There is no controversy concerning this portion of the Act.

Part II of the Act establishes an entirely new category of public assistance designated as Medical Aid to the Aged (MAA). Under the provisions of this section, aid is provided for medical expenses for those citizens over 65 who are not on relief but whose resources are so limited that any significant illness would force them into total indigency and onto the relief rolls. The eligibility standards are established individually by each state and the administration of this category of aid remains in the state, usually the Department of Welfare.

The Kerr-Mills Act has been passed by the Congress and signed by the President and is now law. Twenty-one states and 3 territories have implemented Medical Aid for the Aged since this law was enacted in September 1960 — with varying eligibility standards set up individually by each state.

A committee of your State Medical Association under the chairmanship of Dr. J. L. Falls has recommended that eligibility standards in Minnesota be $1800 annual income for the single individual and $2400 annual income for husband and wife, with a net worth not to exceed $15,000. This committee has also recommended that medical fees for this category of assistance be the same as those currently paid for the care of those on Old Age Assistance.

As it does not seem reasonable to exempt individuals of this income and net worth from all financial responsibility for illness, the committee has recommended a deductive provision of $200 which the individual must pay personally before becoming eligible for MAA. It is not the relatively minor expense that forces people to become medically indigent but the major or catastrophic illness. It is for such illnesses that MAA has been designed.

The deductible provision will also discourage over utilization or malingering.

The above recommendations of Dr. Falls' committee were adopted by the House of Delegates of the State Medical Association at a special meeting November 18, 1962 and the Association will support a bill to implement MAA with these eligibility provisions in the next legislative session.

If this bill is passed by the legislature, the Federal government is obligated to pay to the state 50% of the administrative expense and 56.4% of the actual health care costs, the remainder to be paid by the state and county.

The proposed bill will provide total health services including hospitalization, nursing home care, physician's fees and drugs for as long a period as such services are required.

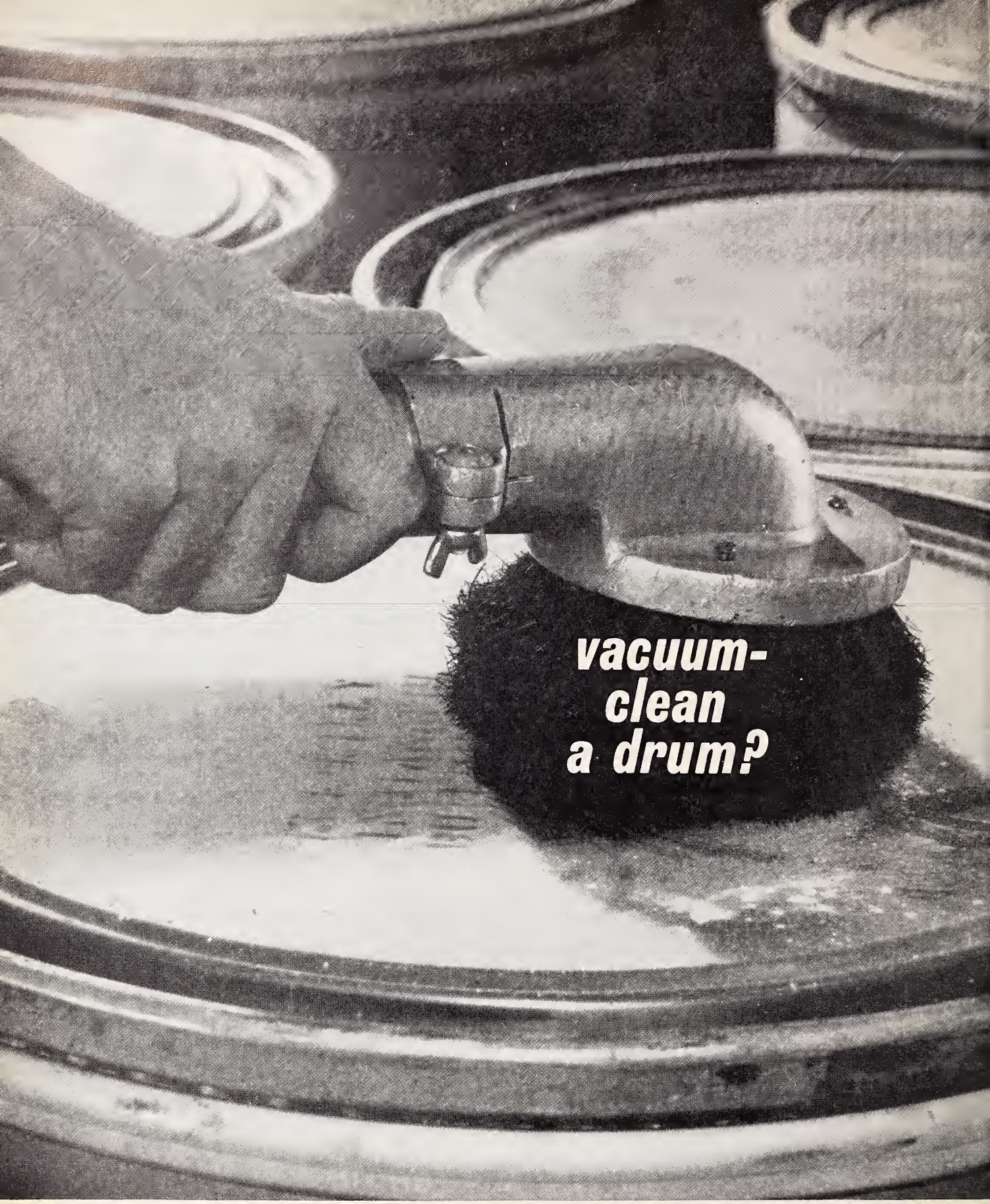
The implementation of MAA in Minnesota is desirable for the following reasons:

1. It will provide aid for the group of older citizens not on relief for whom major or catastrophic illness will cause total indigency. It will in effect make it impossible for any senior citizen in Minnesota to be rendered totally indigent and forced onto relief rolls by a catastrophic illness.
2. It makes liberal provision for the medical and hospital expenses of those in need — but only for those in need.
3. It will be administered at the local level.
4. It will provide a mechanism by which the citizens of Minnesota with the cooperation of the physicians of the state can again demonstrate their willingness and ability to solve their own problems in the provision of health care for the needy older members of our community.

I urge each physician to study the proposed legislation and to contact his representative in the legislature and urge his support for the enactment of this legislation.



Donald McCarthy, M.D.
President
Minnesota State Medical Association



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VILLOUS ADENOMA OF THE RECTUM with Electrolyte Imbalance

Large amounts of fluid containing sodium, potassium, and chloride may be lost by rectum in a patient with a villous adenoma. As in the present case, a combined abdomino-perineal resection may be needed to save the patient's life.

LOREN E. NELSON, M. D.
St. Paul, Minn.

THE DIAGNOSIS of disturbance of electrolyte balance due to villous adenoma of the rectum has been made with increasing frequency in recent years. McKittrick and Wheelock[4] first reported such a case in 1954. Since then approximately twenty cases[6] have been added to the literature.

Certain villous tumors, as they attain a large size, produce increasing amounts of mucus, which may be lost from the rectum in large volumes, and has been found to contain considerable amounts of electrolytes. An imbalance may develop, characterized by dehydration, hyponatremia, hypokalemia, hypochloremia, prerenal azotemia, and metabolic acidosis.

Villous tumors may occur in any portion of the colon, but are usually found in the rectum and lower sigmoid colon. They appear most often in individuals over 50 years of age, and with equal frequency in males and females.[3] The lesion is usually solitary, large and sessile, with a broad attachment to the bowel wall.

Case Report

A 70-year-old woman was admitted to the hospital on December 15, 1961 with a chief complaint of nausea and vomiting of three weeks' duration. She reported a weight loss of eight pounds during this period. For several months before the onset of these symptoms, the patient had been aware of loose, frequent bowel movements, many of which consisted primarily of mucus with very little stool.

Initial treatment was symptomatic for the nausea and vomiting. Blood chemistry tests on admission revealed a chloride of 85 meq/L, sodium 136 meq/L,

and potassium 3.5 meq/L. Small amounts of intravenous fluids were administered and Kaon elixir was given orally to bolster the potassium level. Auricular fibrillation was noted, and quinidine was given to correct this.

A colon X ray on December 19 showed a large polypoid mass in the rectum, and proctologic consultation was requested. On December 21, the patient was confused and very lethargic; she responded poorly and was unable to respond to questioning. Rectal examination demonstrated a steady flow of mucus literally running from the anus. A large bulky soft tumor mass could be felt in the rectum.

The patient was transfered to the special care unit. Emergency blood chemistry tests revealed a chloride of 39 meq/L, sodium 113 meq/L, and potassium 7.0 meq/L. The pathologist felt that the elevation of potassium was due to hemolysis at this time.

Intensive intravenous replacement of fluid and electrolytes was begun. Hypertonic sodium chloride was administered as well as isotonic solutions of glucose and saline. The patient was initially in shock with a systolic pressure as low as 70 mm. of mercury. It was necessary to maintain the pressure with Aramine until the electrolyte balance improved.

Blood chemistries the next morning, December 22, were much improved, with the chloride 89 meq/L, sodium 130 meq/L, and potassium 3.6 meq/L. The patient was now responding and able to take oral feedings and medication. She was started on oral potassium and sodium chloride in addition to intravenous feedings. Only by this intensive treatment was it possible to keep pace with the large fluid and electrolyte loss in the profuse rectal drainage during the next two days. It was decided that despite her precarious condition, an attempt should be made to remove at least part of the rectal tumor with as little trauma as possible.

On December 23, the patient was examined under anesthesia. The large villous tumor was found to fill the rectum, covering the mucosal surface entirely up to the 11 cm. level. It was not possible to remove it locally, but the bulky portion of the tumor was removed in several areas, hoping to reduce the surface area of the mucus-secreting cells.

Loose bowel movements continued with a reduced, but still considerable passage of mucus. Plans were made to do a radical removal of the rectum, and the electrolyte balance was maintained by oral Kaon and sodium chloride. The hemoglobin level had dropped to 9.5 grams, and two blood transfusions were given.

On January 4, 1962 a combined abdominoperineal resection of the rectum was done. The villous tumor was found to be 13 cm. in diameter and 10 cm. from the lower to the upper edge. Microscopic study of the tumor demonstrated infiltrating adenocarcinoma in the villous papilloma. The postoperative course was uneventful, and the patient left the hospital January 25, 1962. She has remained active and strong. Followup visits will continue as in the case of any malignant colon lesion.

Malignant Potential

A villous tumor arises from the superficial epithelium, whereas adenomas arise in the depth of crypts from mucous glands. A typical, large, sessile villous tumor is an elevated papillary growth composed of very thin villi of finger-like projections so close together that they might be overlooked because they resemble normal mucosa. The tumor is soft and velvety in consistency. The incidence of malignancy in these tumors has been reported from 7 - 100% in various series.[2]

Water and Electrolyte Loss

A villous tumor with its many filmy villi is covered by tall columnar mucus-secreting cells, and may have an enormous surface area. The amount of mucus produced depends on the activity of the surface cells, hydration of the patient, and especially on the size and surface of the growth. Electrolyte imbalance is a potential complication in any patient with a large villous tumor who loses a liter or more of fluid from the rectum per day. The dietary intake of water and electrolytes in these patients must fall below a critical level before abnormal losses will produce clinical effects of deficiency.

The normal loss of water in the stool is from 100-200 cc. daily. The content of electrolytes in the normal stool is sodium 2-5 meq/L and potassium 10-15 meq/L. Up to 3400 cc. of fluid may be lost daily from the rectum of a patient with a large villous tumor and this fluid contains high concentrations of electrolytes:

Sodium	—	103 - 158	meq/L
Potassium	—	15 - 80	meq/L
Chloride	—	99 - 141	meq/L

Uncompensated loss of these large volumes of water and electrolytes leads to a syndrome of dehydration, hyponatremia, hypokalemia, hypochloremia, prerenal azotemia, metabolic acidosis hyperglycemia, and circulatory collapse.

Symptoms

The average duration of symptoms prior to severe electrolyte imbalance is 5.4 years as compared with an average duration of 2.4 years to the time of diagnosis and treatment in a series of villous tumors without electrolyte imbalance.[6] The early symptoms are those of a change in bowel habits. There is an increased frequency of bowel movements, many of which contain large amounts of mucus. Frequently the diarrhea is worse in the morning because of accumulation of mucus secretions in the rectum during the night.

Bleeding, pain, and pressure from the tumor are uncommonly seen.

As the loss of water and electrolytes from the rectum increases in amount and exceeds the intake, new symptoms develop. Severe thirst, anorexia, vomiting, and weight loss are noted. If the electrolyte imbalance is not diagnosed and treated at this point, after a period of several days to a few weeks the patient develops lethargy, confusion, weakness, and oliguria. A state of collapse may then appear suddenly and may cause death if the electrolyte depletion is not treated.[1, 5]

Treatment

The treatment of this condition when recognized consists of intensive replacement of fluids and electrolytes. This may be lifesaving, but normal values of electrolytes cannot be maintained without removal of the mucus-producing tumor. Complete excision of the tumor must be undertaken as soon as the patient's condition permits. Many villous tumors are benign and may be excised from below and the defect in the rectal wall sutured. Malignant tumors and those benign lesions involving most of the rectal mucous membrane must be radically removed by means of an abdominoperineal resection of the rectum or "pull through" operation.

Summary

A potentially serious loss of fluids and electrolytes can occur with large villous tumors of the distal bowel. This condition must be recognized, the electrolyte imbalance corrected, and the tumor removed. Failure to do so may lead to death from severe electrolyte depletion or from malignant degeneration of the villous tumor.

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HEREDITARY PSEUDOHEMOPHILIA SYNDROME

(Willebrand-Jurgens Syndrome)

This syndrome has been considered to be a constitutional nonhemophilic, hereditary, hemorrhagic diathesis, in which the inheritance is a simple Mendelian dominant. Numerous family members may be involved, usually in childhood.

The diagnostic criteria are inconstant. Pathologic bleeding occurs from usual hemorrhagic sources including nasal mucous membranes, gingivae, and gastrointestinal and renal sources. Hemorrhages also occur in the retina and in cutaneous tissues as petechiae and spontaneous ecchymoses. Study of the characteristics of the blood reveals a normal platelet count, clot retraction, coagulation, and prothrombin consumption. The bleeding time is prolonged.

The basic etiologic factors have not been determined.

A benevolent man should allow a few faults in himself to keep his friends in countenance. Benjamin Franklin.

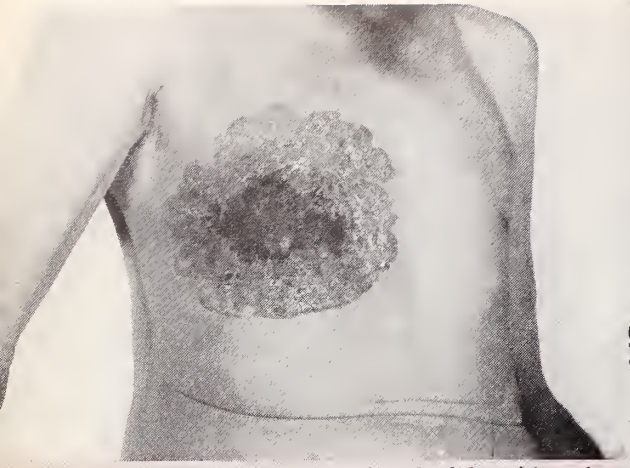


Fig. 1. Appearance of wall of right side of chest in our patient. Extent of skin lesion is apparent.

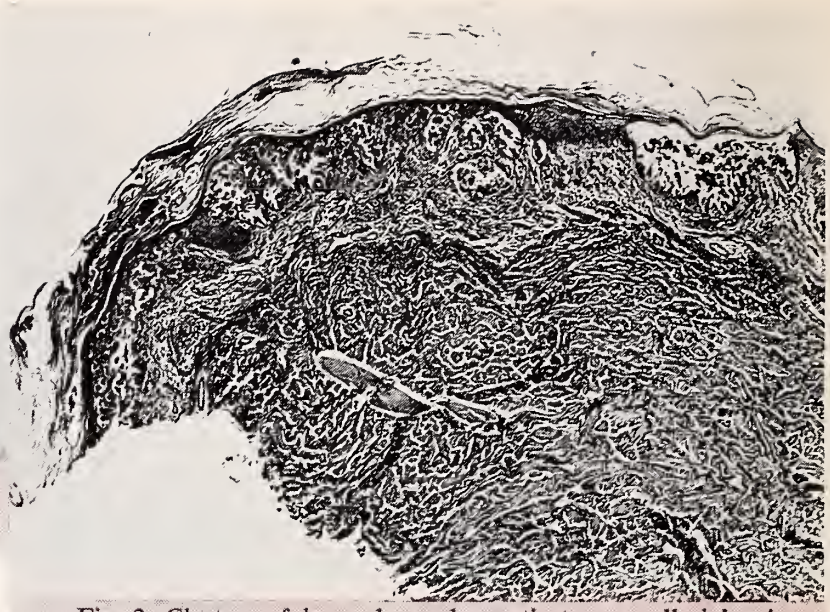


Fig. 2. Clusters of large, hyperchromatic tumor cells lying in clear spaces throughout epidermis. Note also dermal inflammatory infiltrate (hematoxylin and eosin; x60).

Paget's Disease of the

IN 1874, SIR JAMES PAGET[1] reported a group of cases in which he had observed chronic erosion of the nipple, which was followed, in some instances, by carcinoma of the breast. All of his patients were females. Unfortunately, the histologic findings in these patients were not presented. Since that time a fairly definite entity has evolved which has come to be known generally as Paget's disease of the nipple. This consists of "Paget cells" in the epidermis of the nipple in association, in almost all instances, with carcinoma involving the terminal portions of one or more of the lactiferous ducts. With progression of this condition, the Paget cells may invade the epidermis adjacent to the nipple and, in advanced stages, even the epidermis of the thoracic wall. They are large,

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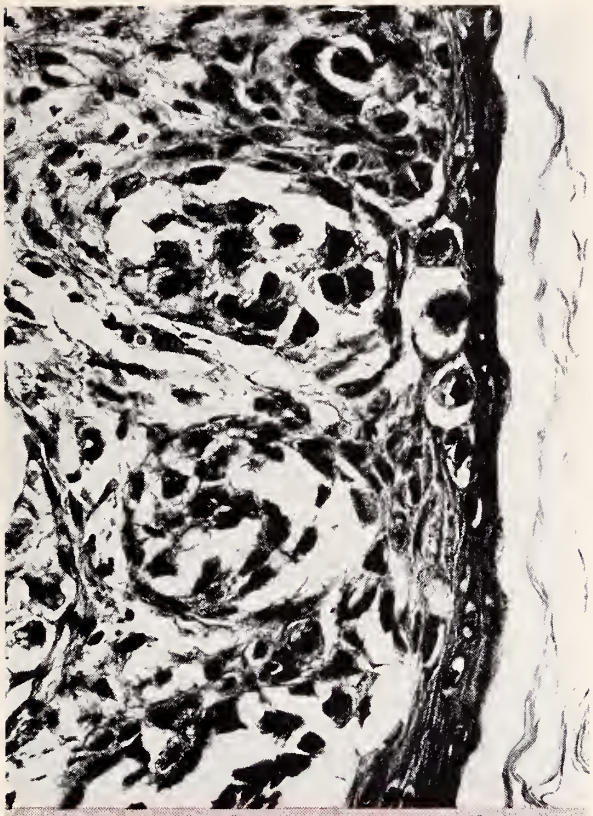


Fig. 3. Details of malignant (Paget) cells in clear spaces. Cells occur individually and in large clumps (hematoxylin and eosin; x420).



Fig. 4. Advancing edge of Paget's carcinoma. Note moth-eaten appearance of papillary pegs and the inflammatory infiltrate. Orifice of a sebaceous gland is surrounded by clusters of Paget cells (hematoxylin and eosin; x60).

Male Breast

PAUL R. STANLEY, M.D.*
HARRY N. HOFFMAN, II, M.D.**
MALCOLM B. DOCKERTY, M.D.‡
Rochester, Minnesota

neoplastic cells with pale cytoplasm and prominent, irregular nuclei which are occasionally seen in mitosis. They occur singly or in clumps in the epidermis, where they frequently appear to lie in clear spaces. The aforementioned ductal carcinoma of the nipple is often associated with a more deeply situated and often invasive adenocarcinomatous component within the breast.

Paget's disease of the nipple is an uncommon disease. In the data of Haagensen,[2] it constituted about three per cent of all mammary carcinomas. It is very rare in the male; we were able to find only 12 cases in the literature.[3-14]

The following report of a case of Paget's disease of the male breast is presented not only because of the rarity of the condition but also because of the apparent long duration of the disease.

Report of Case

The patient was a 56-year-old farmer from Wisconsin who was first seen at the Mayo Clinic in December 1961. His chief complaint was of severe low back pain. Since his early twenties, he had noted an erythematous, oozing, scaling lesion in the area of the right areola, which had varied in size but had persisted over the years. Ten years prior to his initial visit to this clinic, he had consulted a dermatologist elsewhere, who diagnosed psoriasis and recommended local treatment. He had tried local treatment intermittently during the 10-year period, and the lesion apparently decreased in size with this treatment but did not clear completely. Since August 1961 the lesion had increased progressively in size in spite of local application of an unknown type of spray.

In September 1961, low back pain gradually developed and became progressively more severe. For about two months prior to admission the patient was able to do little more than sit about the house because of the pain. Approximately two weeks before admission a cough developed which was productive of a small amount of green sputum and which was occasionally blood-streaked. During this two-week period he also noted pain in the right side of the chest; it had a dull aching quality and was aggravated by coughing and deep breathing. He had had shortness of breath, even on slight exertion, for an indefinite period of time. He had lost 25 pounds since September 1961.

On physical examination the patient was pale and appeared to be chronically ill. Because of back pain he was unable to undress for the physical examination without assistance. Three enlarged, hard lymph nodes were palpable in the right axilla. An erythematous, indurated, crusted, and ulcerated cutaneous lesion, measuring 15 cm. in diameter, extended over the right anterior portion of the chest from the right sternal border to the right midaxillary line. The right nipple, which had been in the center of this lesion, was completely eroded away. No clearly circumscribed masses were palpable in the breast. The lumbar curve was flattened, and muscle spasm and tenderness were elicited in the lumbar region. Dullness to percussion and decreased breath sounds on auscultation were noted at both lung bases posteriorly, and there was tenderness in the right side of the thorax posteriorly.

Roentgenograms of the spinal column revealed diffuse osteolytic metastasis in the lower thoracic and lumbar portions of the spinal column. Some degree of collapse of the eleventh and twelfth thoracic vertebrae was evident. Roentgenograms of the thorax revealed bilateral pleural effusion. Pathologic fractures of an osteolytic nature involved the fourth and fifth right ribs posteriorly and the left sixth rib posteriorly.

The patient was hospitalized for biopsy, and a small ellipse of skin, two cm. in length, was removed from the periphery of the breast lesion.

Pathologic examination disclosed invasion of all layers of the epidermis with large, malignant-appearing cells lying singly and in small clumps in what apppeared to be clear spaces within the epidermis. These clusters of cells had disrupted the rete pegs, which exhibited a moth-eaten appearance. A mild chronic inflammatory infiltrate was present in the adjacent dermis. Here and there the malignant cells were seen to invade adnexal skin structures consisting of sweat and sebaceous glands. Under high magnification, no pigment was observed in the cytoplasm of the carcinoma cells and no "junctional" component was apparent, such as one would expect if the lesion represented a malignant melanoma. Also militating against this diagnosis was the fact that at no point did the malignant process extend down into the dermis.

The diagnosis accordingly was intra-epidermal metastasis in a picture consistent with Paget's disease of the nipple (fig. 1 to 4).

Bilateral orchiectomy was performed. No hormone therapy was recommended. The patient returned in February 1962 for re-evaluation of his condition. Roentgenograms of the thoracic and lumbar portions of the spinal column revealed the metastatic involvement that had been noted previously, but these areas were thought to be somewhat more densely calcified. The patient estimated an 80 per cent improvement in his back pain. Roentgenograms of the thorax showed that the pleural effusions had cleared completely. The breast lesion had not changed in size, but the central area of ulceration and crusting showed definite evidence of early healing. This type of clinical improvement is entirely in keeping with the behavior of carcinoma of the breast.

Comment

The all-important criterion for the diagnosis of Paget's disease of the breast is the presence of Paget cells in the involved epidermis. Some observers maintain that these neoplastic cells are derived from elements within the epidermis and that they merely coexist with an almost constantly associated carcinoma of the breast. Others have suggested that the cutaneous lesion may give rise to the carcinoma in the breast. The majority contend that the carcinoma of the breast is the primary lesion and that the Paget cells represent intra-epidermal metastasis. The authors favor this last concept even though, in the present case, microscopic evidence of a breast lesion was not obtained.

The theory that Paget cells arise from epidermal elements cannot be disproved, since their origin has not been established. The fact that these cells are almost always accompanied by carcinoma of the breast supports the view that these two lesions are of unicentric origin. One of us (M.B. D.)[15] has reported a group of cases of "preclinical Paget's disease of the nipple": cases of relatively far-advanced carcinoma of the breast with associated microscopic, subclinical collections of Paget cells in the epidermis of the nipple. It would seem highly unlikely that the cutaneous lesion in these cases could give rise to the mammary carcinoma. The cases of "extramammary Paget's disease" that have been reported[16,17] likewise lend support to

the theory that the Paget cells are metastatic elements. These are cases in which intra-epidermal neoplastic cells are seen in regions other than the breast (perianal, in cases of rectal carcinoma; abdominal wall, about a cystostomy for transitional cell carcinoma of the bladder). These Paget cells are definitely metastatic in origin. The weight of evidence seems to point to the mammary carcinoma as being the primary disease and Paget's disease of the nipple as being metastatic.

From a practical point of view, the fact remains that the presence of Paget cells almost always means that there is coexisting carcinoma of the breast. Erosions of the nipple, therefore, should always be looked for at the time of physical examination regardless of the sex of the patient. If erosion is found, it should be regarded with much suspicion and biopsied early. In the event that Paget cells are found in the biopsy specimen, radical mastectomy should be performed, unless, as in the present case, an inoperable situation exists.

Summary

A rare instance of Paget's disease of the nipple in a male — 12 cases were found in the literature — is presented. A 56-year-old man had had a lesion in the region of the right nipple since his twenties. His complaints on admission included severe low back pain and chest pain with shortness of breath. Examination disclosed, in addition to an extensive lesion on the breast, enlarged axillary lymph nodes on the right side, bilateral pleural effusion, and osteolytic damage of the lower thoracic and lumbar portions of the spinal column and of some ribs. Biopsy of the breast lesion revealed malignant-appearing (Paget) cells invading all layers of the epidermis as well as adnexal structures. Bilateral orchiectomy was performed. Several months later the metastatically-involved bone showed some increase in density, the back pain had improved considerably, the pleural effusion had cleared, and the breast lesion showed early healing. The authors favor the concept that mammary carcinoma is the primary disease and that Paget's disease of the nipple is metastatic. Erosion of the nipple should be looked for regularly regardless of the sex of the patient. If erosion is present, biopsy should be performed early; the presence of Paget cells is an indication for radical mastectomy. The apparent long duration of the malignant process in the present case is highly unusual.

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Figure 1 Case II—C. L.—Anterior-posterior chest roentgenogram illustrating the double density in the left superior mediastinum.



Figure 2 Case II—C. L.—Left lateral chest roentgenogram and aortogram depicting the aortic deformity at the isthmus (subclinical coarctation) and the absence of enlarged collateral arteries. The deformed calcified aortic valve is also evident.

Pseudocoarctation

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PSEUDOCOARCTATION REFERS to a malformation of the aorta evident on a roentgenogram of the chest; the term does not include a clinical syndrome! Common substitute terms for "pseudocoarctation" are "kinking" and "buckling."* We wish to differentiate.

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*Kink—"A twist or curl, as in a thread, rope, or hair caused by its doubling or bending upon itself." p. 673. Buckle—"To bend, warp, or give way suddenly, as with heat or pressure." p. 155.
American College Dictionary, 1953, Random House, Canada LTD

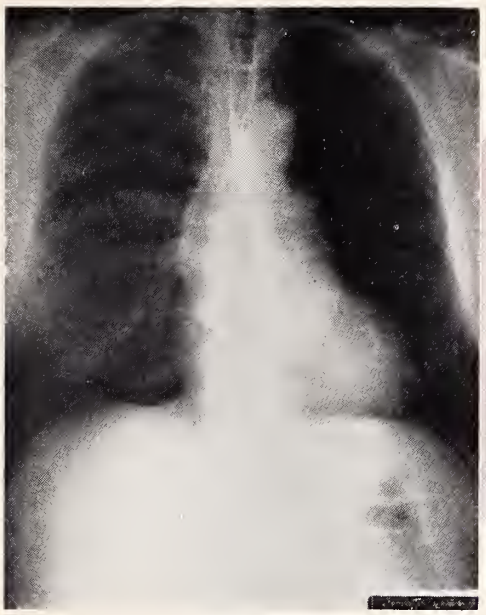


Figure 3

Figure 3, 4, 5 Case I—H. F. B. Chest roentgenograms and aortograms graphically illustrate the elongated, buckled aorta but a normal aorta isthmus and arch.



Figure 4



Figure 5

of the Aorta

a misnomer

The radiological term "pseudocoarctation" has the unfortunate clinical implication that the coarctation is not real and therefore of little significance. Consequently many physicians undoubtedly dismiss this aortic abnormality as an interesting but inconsequential finding, significant only in its differentiation from other mediastinal lesions![2,3] This is especially true if the patient presents no physical findings of a true coarctation syndrome, and the aortic abnormality is discovered only incidentally on a routine chest roentgenogram. The lesion is and should be designated as a congenital and pathological coarctation, a subclinical type, if one so desires. Therefore the prefix "pseudo" should not be used.

The anatomy of such an abnormality is well demonstrated in Figures 1 and 2 showing a malformation at the aortic isthmus which is

abruptly angled at the ligamentum arteriosum. The superior density in the region of the aortic knob represents the proximal aortic arch in the superior-anterior mediastinum; this has been mistaken for an aneurysm or a mediastinal neoplasm.[2] The inferior density is the descending aorta distal to the angulation. This portion may deform the esophagus (inverted E sign of coarctation). As there are no rib notches or enlargement of the vascular collateral channels, it has been assumed that the aortic lumen is not compromised by the angulation.

The primary purpose of this paper is to present our conclusions on this special type of aortic deformity and on the use of the terms "pseudocoarctation," "buckling," and "kinking." These terms, along with the faulty conclusions incident to their use, have confused and obscured the clinical importance of the two different types of aortic abnormality, the one congenital ("pseudocoarctation") and the other acquired ("buckling" or "kinking"). The precise understanding of the pathology of these two aortic changes is important if the patient is to receive the indicated followup and studies.

"Buckling" or "Kinking" of Aorta

Although our primary objective is to clarify the subject matter relative to "pseudocoarctation," we wish first to cite a case of "buckling" or "kinking" of the aorta.[4]

Case 1

H. F. B., (Mt. Sinai #79263, SLPMC #76494) a 58-year-old white male with no history of rheumatic fever. In 1950 he developed fatigue and dyspnea on exertion. Cardiac murmur was heard. Because of increasing symptoms, he was studied in December, 1960. The blood pressure was 175/90 mm. Hg. All arterial pulses were equal and vigorous. The basal murmur of aortic valvular stenosis was auscultated. Cardiac fluoroscopy and aortograms revealed a calcified aortic valve, a left ventricular hypertrophy and an elongation and "buckling" of the aorta: (Figures 3, 4, and 5). The heart catheterization showed no evidence of an intracardiac shunt but revealed a definite aortic valvular obstruction (gradient 40 mm. Hg., valve opening size calculated at 1.0 cm.^{2}). The patient postponed the advised surgical correction.

Such a change in the aorta is an acquired lesion of aging, i.e., elongation and ectasia, and appears during the fifth or later decades of life. This is not an abnormality of the aortic isthmus or a coarctation. The "buckling" occurs in the thoracic aorta distal to the isthmus, and the area of such "buckling" is of even caliber and without a proximal or distal enlargement. The collateral channels are of normal size. Clinically there is no consistency in the cardiac findings, i.e., no definite type of murmur. Such an aortic change was first described by Rosler and White in 1931.

"Pseudocoarctation"

The second type of aortic abnormality, incorrectly labeled "pseudocoarctation", is of congenital origin. Not all agree, however, that this lesion is congenital; Bruwer, for instance, felt it was an acquired lesion of aging.[5] Nevertheless, the presence of this abnormality in young patients, the constant anatomical pathology, and the associated congenital lesions support the theory of congenital origin. We are of the opinion that this entity is a true coarctation consonant with the pathological criteria described by Edwards as having a "curtainlike infolding of the media that involves the superior, anterior, and posterior aspects of the aorta" at the aortic isthmus. The external diameter of the aorta, although narrow, is considerably larger than the lumen. A careful study of nine cases and an interpretation of the reports on "pseudocoarctation" support our viewpoint.

Therefore we have enlarged the classification of coarctation (first proposed by Abbott,[6] 1928, and modified by Reifenstein,[7] 1947) to include the subclinical (pseudo) coarctation:

I. Incomplete Coarctation—with or without collateral vascular enlargement.

- (a) Minimal: lumen diameter more than 10 mm. (subclinical type).
- (b) Moderate: lumen diameter between 6 and 10mm.
- (c) Severe: lumen patent but less than 6 mm. in diameter.

II. Complete (extreme) Coarctation—a total interruption of the aortic lumen.

Clinical Observations

We have had experience with nine individuals with subclinical coarctations (Chart I) (Cases II to X in appendix): five males and four females ranging in age from 37 to 74 years. No patient sought medical advice because of symptoms directly related to the coarctation. In one individual only (M. J. #4) was the examiner suspicious of a possible coarctation because of slightly diminished femoral arterial pulsation. In the remaining eight cases the chest roentgenograms were

Case	Sex	Age	B.P. Arm	B.P. Leg	Basal Murmur	E.K.G.	Diagnosis Coarctation without collateral enlargement	Comment
II E.B.	F	61	130/94	136/94	Sys IV	Left axis L.V. strain	Surgery	Gradient 120 mm. Hg. across aortic valve. Closed transventricular aortic valulotomy. Postoperatively, B. P. 200/70 all extremities.
III C.L.	M	53	110/80	120/80	Sys IV	Left axis L.V. strain	Aortic Angiogram	Gradient 75 mm. Hg. across aortic valve. Open-heart valvuloplasty.
IV M.J.	M	41	130/100	120/100	Sys I	L. axis	Aortic Angiogram	Progressive enlargement of ascending aorta.
V R.K.	F	42	200/100	200/100	Sys II Dias I	L. axis	Surgery	Ligamentum arteriosus divided surgically in 1953. Ascending aorta large. No change in aortic size or configuration since.
VI V.K. *	F	43	116/86	120/80	Sys II	Normal	Surgery	Surgical resection of a coarctation, 9 mm. internal lumen diameter. No change in basal aortic murmur postoperatively.
VII J.T. †	M	37	140/90	125/110	Sys II	Not done	Aortic Angiogram	Patient refused further investigation. Ascending aorta very large.
VII A.R. †	M	73	150/90	NR*† good pulse femoral	Sys II	1st degree block L.V. strain	Aortic Angrogram	Surgical exploration demonstrated aneurysm of ascending aorta and abnormal origin of brachiocephalic vessels.
IX E.L.	F	74	130/70	NR good pulse femoral	No	L. axis	Calcification aorta	Aneurysm ascending aorta and innominate artery. However, serology and spinal fluid positive for syphilis.
X R.H. **	M	30	115/70	125/76	Sys III	L. axis L.V. hypertrophy	Aoratic Angiogram	Asymtomatic

*Case reports presented through the courtesy of J. Garamella, M. D.
†Case reports presented through the courtesy of P. Gordon; H. Moral, M. D.
**Case reports presented through the courtesy of H. Perlman, M. D.
NR*†—not recorded

taken in order to further evaluate the heart, either because of a basal murmur or as a routine procedure in the physical examination. The atypical configuration of the aorta alerted the clinician, and further diagnostic steps were taken.

Cardiac fluoroscopy, aortic angiography, or surgical exploration established conclusively the picture of the coarctation.

In all patients there was a normal blood-pressure relationship in the extremities. The most constant physical finding was a coarse basal systolic cardiac murmur in the right parasternal area and radiating into the neck. In eight of the nine patients this was auscultated. The etiology of the murmur was not always apparent. Two patients by cardiac catheterization had significant aortic valvular stenosis that required surgical intervention (Case #II and #III). In seven others the electrocardiogram was abnormal and might be an early indication of developing aortic valvular obstruction and left ventricular hypertrophy. The murmur was unaffected by surgical division of a short ligamentum arteriosum (Case #V) or by the resection of a coarctation (Case #VI).

In four patients (aged 37, 41, 42, and 74) there was enlargement of the proximal aorta (ectasia or aneurysm). In two this portion of the aorta has shown gradual enlargement in a ten-year period. There has been no known case of subacute bacterial endocarditis.

Morbidity

Unfortunately some individuals with moderate or minimal degrees of coarctation are heirs to very serious associated difficulties. In their review Abbott and Riefenstein summarized the autopsy findings in 304 cases of coarctation. Included were patients with coarctations which were

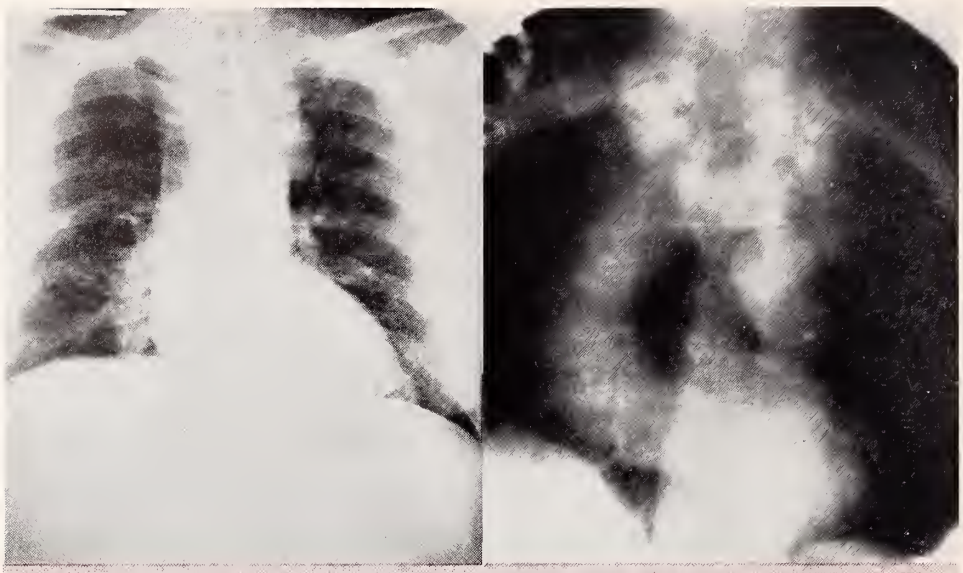


Figure 6, 7, Case—M. J.—Chest roentgenogram and aortogram ("Venous" technique) demonstrating a coarctation of the aorta and an enlarged buckled left subclavian. No other collateral vessels were enlarged.

clinically nondynamic and would have been classified in the present literature as "pseudocoarctations." Other authors have reported similar autopsy cases.

The morbidity in these individuals with subclinical coarctation was not the result of the coarctation per se but of the associated lesions of the heart, the aortic valve, the aortic wall, or the cerebral vessels. These complications were:

(a) Subacute bacterial endocarditis on an abnormal aortic valve or aortic intima near the coarctation.[6,7]

(b) Stenosis (often calcified) of a biscuspid aortic valve. [8,14,15]

(c) Congenital abnormality of the sinus of valsalva (aneurysm) or other congenital cardiac lesions.[8]

(d) Ruptured aneurysms of the ascending aortic arch or of the descending aorta distal to the internal shelf of the coarctation.[17,18]

(e) Rupture of "berry" aneurysms of the cerebral vessels.

Associated Pathologic Findings

The most prominent abnormality is in the aortic valve. Edwards[19] states that bicuspid aortic valves are present in 85% of cases with any degree of coarctation. Such a bicuspid valve is more prone to develop secondary calcium deposits, valvular stenosis or insufficiency, subacute bacterial endocarditis, and possibly rheumatic endocarditis. We feel that the basal systolic murmur heard in the majority of patients with "pseudocoarctation" reported in the literature, and in our cases of subclinical coarctation and in patients with the coarctation syndrome, may be from this valvular abnormality rather than the aortic configuration. Resection of the coarcted aortic segment does not usually influence the murmur.

Comments and Conclusions

Our own experience with nine cases of minimal subclinical coarctation demonstrates that abnormalities in the aortic valve and aortic wall do develop in a certain number. This might be coincidental and yet the data in the literature suggests otherwise. The natural history of the process remains for future observation. Although a few cases of subclinical coarctations have received long-term followup by others, there has been no series of autopsies of statistical nature reported. We realize that many patients with minimal coarctations live without problems related to the coarctation. The exact incident of asymptomatic minimal or moderate coarctations is unknown as autopsy series probably do not reflect the true value.

We are of the opinion that individuals with nondynamic subclinical coarctations should be carefully observed on a periodic basis. In addition to the physical examination, chest Xrays and an electrocardiograph are indicated. Angiograms,

cardiac catheterization, and intra-arterial femoral and brachial pressure studies might well be indicated in select cases.

This observation has been of assistance in the protection of these individuals against the hazards of the secondary conditions associated with the coarctation and not the coarctation itself. Procedure or illness likely to produce bacteremia and endocarditis is hazardous to the individuals whose cardiac examination has disclosed a basal systolic murmur. These patients might best be treated with prophylactic antibiotics in such instances. The likelihood of aortic valvular stenosis, aortic aneurysm, and cerebral aneurysms should be kept constantly in mind.

"Pseudocoarctation" is a misnomer. The term "subclinical coarctation" is more precise and less likely to cause confusion. Individuals so affected are heirs to the same secondary diseases of the aortic valve and arteries that afflict patients with dynamic coarctations. Proper terminology will ensure the proper insight into the problem by the physician.

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He who spends all his time hating his enemies misses chances to do many more useful things—Hugh Murr

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Detour: something that lengthens your mileage, diminishes your gas, and strengthens your vocabulary—Oliver Herford

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If all economists were laid end to end, they would not reach a conclusion—George Bernard Shaw

IS THERE A TRUE STEIN-LEVENTHAL SYNDROME?

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A perplexing and controversial clinical syndrome has received clinicopathologic confirmation.

TWENTY-SIX YEARS ago Stein and Leventhal[1] described the syndrome which bears their names. This syndrome consists of hirsutism, obesity, menstrual irregularity, infertility, and palpably enlarged ovaries. Reports[2] from the literature during the past few years indicate, however, that obesity is no longer one of the prime distinguishing characteristics of this syndrome, and Stein concurred in 1958. Surgical wedge resection of the abnormal ovaries may correct the menstrual irregularity and, with variable frequency, the infertility.[3-6]

As the years have passed, attempts to clarify the abnormal physiology, basic in this syndrome, have been essentially fruitless.[7-11] In general terms, however, for some unknown reason the ovarian tissue seems to be hypersensitive to normal levels of gonadotrophins.[10, 12, 13] Although the cause is obscure, the condition has been considered fairly straightforward and easily recognized clinically, until recent reports[14, 15] appeared in which the Stein ovaries were found in patients with other conditions, such as Cushing's disease and adrenogenital syndrome.

In an attempt, therefore, to answer the question, "Is there a true Stein-Leventhal syndrome?" we reviewed the clinical records of the patients seen at the Mayo Clinic in the 10 years from 1950 through 1959 on whom biopsies had revealed ovarian tissue that was histologically characteristic of the syndrome. This study involved 37 patients in whom gross and microscopic examinations of ovarian tissue fulfilled the following criteria for the Stein ovary: the ovaries were usually enlarged, soft in consistency, pearly gray; and often the cut surface of the tissue revealed a thick rind. There were microscopic subserosal cysts and an occasional corpus luteum. On microscopic examination, this thick rind was composed of fibrous connective tissue. The cysts were follicular. There were numerous primordial follicles and hyperplasia of the theca interna, often with mitosis of individual cells. The remaining cortex was hyperplastic.[16, 17]

Clinical Data

Menstrual Irregularity

As might be expected, a large proportion of the records revealed that on gross and microscopic examination these patients with Stein ovaries did have a typical Stein-Leventhal syndrome with a fairly typical clinical picture. The age of onset of menses varied from nine to 16 years, with an average of 12.5 years.

Only two patients had primary amenorrhea; 25 gave a history of essentially normal menstrual

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periods for one or more years before the onset of menstrual irregularity. Twenty-five patients complained only of irregular menses as far as the menstrual history was concerned. Menorrhagia was a presenting complaint of eight of the 37 patients. Two patients had normal regular menstrual cycles.

Infertility

With regard to infertility, 28 of these 37 patients were married at the time of examination. Nine had had pregnancy prior to the onset of symptoms. The remainder were infertile. Only 10 of the patients were of normal weight for their height and body configuration. Fourteen were obese. In none was the excess weight considered to be Cushingoid in distribution.

Hirsutism

Various degrees of hirsutism were noted in 28 of the 37 patients, excessive facial hair being common. Whereas only half of this group had the typical male escutcheon, six exhibited prominence of the clitoris, and two had noticeably low voices. Endocrine assays of urine revealed normal values for 17-ketosteroids and corticoids in this group of hairy women and in all the patients in the group studied.

Palpable Ovaries

Twenty-three patients had clinically enlarged ovaries preoperatively and represented cases of Stein-Leventhal syndrome typical in all respects. The 14 cases in which ovarian enlargement was not noted preoperatively, but in which Stein-Leventhal ovaries were found at laparotomy, are of interest in this study.

Operative Findings

It is reasonable to assume that since the patient is at times obese and nulliparous, the soft ovarian enlargement may be missed on examination of the pelvis. In two of the 14 cases in which ovarian enlargement was not discovered preoperatively, exploratory operation was carried out because of extreme hirsutism. Laparotomy was indicated to eliminate the possibility of adrenal tumor or masculinizing ovarian tumor, in spite of normal assays for urinary 17-ketosteroids and corticoids. The ovaries exhibited typical Stein-Leventhal pathologic changes. Three of the 14 were questionable cases of adrenogenital syndrome; the concentration of 17-ketosteroids in the urine was a high normal, and the clitoris was moderately enlarged. Exploration was carried out because of the possibility of adrenal or ovarian tumor. Stein ovaries were found. In two of the 14 cases acanthosis nigricans and concomitant signs of adrenal hyperfunction were present; these cases have been reported[2] elsewhere recently. Laparotomy was carried out in these cases because of the possibility of adrenal tumor, and Stein ovaries were found.

In the remaining seven cases the clinical histories were suggestive of uterine malignancy; for this reason curettage was performed. Adenocarcinoma of the fundus was found in three cases, adenoacanthoma of the endometrium in three, and carcinoma of the cervix in situ in one. At hysterectomy in each of these cases, Stein ovaries were incidental findings. Ovarian enlargement from two to three times normal was reported in each of these seven cases, and a review of the clinical history revealed that the patients had Stein-Leventhal symptoms of varying degrees but of insufficient prominence to attract the attention of the clinician. The coincidence of carcinoma of the fundus and Stein-Leventhal syndrome has been reported from our institution previously[18] and is again out of proportion, we are sure, to its actual incidence because of the selective nature of the series.

Summary

In 37 cases of Stein-Leventhal syndrome, encountered at the Mayo Clinic from 1950 through 1959, biopsy of the ovaries disclosed tissue histologically characteristic of this syndrome. In the light of the findings in these 37 cases we conclude that, if typical clinical symptoms of Stein-Leventhal syndrome are present in addition to the physical finding of palpably enlarged ovaries, there is no doubt that the syndrome described by Stein and Leventhal exists. There is, however, great variation in the degree of associated symptoms which may mimic the clinical picture produced by certain adrenal abnormalities or by certain functioning ovarian tumors.

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Distinguished Achievement Awards

A Mayo Clinic physician who has blended aeronautical engineering with medicine is one of ten medical leaders named today to receive Distinguished Achievement Awards for contributions directly influencing current medical practice and thought.

He is Dr. Earl H. Wood, professor of physiology of the Mayo Foundation at the University of Minnesota; head of Adult Cardiac Catheterization Laboratory at the Mayo Clinic; and career investigator of the American Heart Association. Dr. Wood was specifically cited for development of new methods to study heart output and heart abnormalities.

Dr. Wood started out to be an aeronautical engineer. From high school in Mankato, Minn., he went on to study pre-engineering at Macalester College, St. Paul, but after two years switched to premedical training. He joined the staff of the new Mayo Aeromedical Laboratory to study the physiologic effects of acceleration. Key to the study was the first modern human centrifuge. Working with this equipment, the Mayo group helped develop a pressure suit to keep Air Force pilots from blacking out. The same type suit is still in use.

In the area of cardiac catheterization, Dr. Wood helped devise equipment which determines blood oxygen saturation instantly and eliminates time-consuming chemical analysis. This technique then was applied to a diagnostic study where dye is injected into the blood stream, a study which can give "more information about the circulation of the blood than any other single thing," according to Dr. Wood.

Food Allergy*

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ALLERGY TO foods is important etiologically in clinical conditions affecting many human tissues and organs. Thus, as food allergy may cause symptoms manifest not necessarily in or confined to the gastrointestinal tract it seems best to designate as food allergy all disorders arising consequent to a hypersensitivity reaction to foods; and to classify as gastrointestinal allergy food-sensitive states, the manifestations of which are exhibited chiefly in the alimentary tract. While most allergic reactions to foods are consequent to their ingestion, some follow inhalation of antigenic foods or contact of them with the skin.

Food allergy as just described implies an antigen-antibody mechanism. The location of the organs in which the sensitized cells are determines the sites of the allergic reaction and thus the symptoms produced. For example, contact of antigenic foods with target cells in any part of the gastrointestinal tract theoretically releases chemical mediators like histamine, serotonin, acetylcholine, or heparin, causing stimulation of mucous glands, spasm of smooth muscle, increased capillary permeability, and consequent edema of the tissues adjacent to the target cells. In extremely sensitive individuals, even the odor of the food or just the contact of it with the oral mucosa may be sufficient to set off a prompt and widespread reaction.

Immunologic Mechanisms

Specific Food Antibodies

Certain general observations regarding the immunologic mechanisms involved in food allergy are pertinent.

*Read at the Graduate Instructional Course of the American College of Allergists, Minneapolis, Minn. April 2, 1962.

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Antibodies specific for the food to which a patient is sensitive are present in his serum. To illustrate this point, the serum of a fish-sensitive individual is injected intradermally into a nonallergic recipient; several hours later, if the recipient eats the allergenic fish, he immediately develops an itching erythematous wheal at the sensitized site. Another example is that of the individual with an urticarial reaction to strawberries, whose blood was transfused to a nonallergic patient; some days later the recipient of the blood ate strawberries and promptly developed hives.

Allergenic Foods

The administration of a barium enema containing small amounts of allergenic food, to a subject specifically sensitive, has immediately provoked intestinal cramps and severe intestinal contractions that were visualized roentgenographically. Fries[1] has stated that sensitivity to food is noted most frequently in infancy and childhood and usually decreases gradually and spontaneously with maturity. He observed further that allergy accounts for only a small percentage of the digestive disorders encountered in adults or even children. Rosenblum and Matheson[2] noted that allergic disease in infants usually begins to be manifested at about the time synthesis of gamma globulin begins.

Extracted Foods

Also apropos of immunologic mechanisms in food allergy, a word should be said relevant to skin-test sensitivity of individuals afflicted. Strongly positive reactions are usual in patients with acute clinical food allergy. Severe constitutional reactions may occur if one does skin tests to fish, nuts, buckwheat, mustard, cottonseed, milk, eggs, or legumes in persons clinically sensitive to any of these. The extracts of certain foods are naturally irritative and thus prone to give positive skin reactions in many individuals. Examples of such foods are spinach, potato, tomato, banana, citrus fruits, and some spices.

Markow[3] stated that many positive food reactions not associated with clinical food allergy indicate past sensitivities that have been outgrown clinically without loss of cutaneous sensitivity. Dees[4] pointed out that a skin-test reaction to an intact food may be negative in some patients whose symptoms do not immediately follow the ingestion of the food. However, she noted that proteoses and partially digested products of the same food may produce symptoms later and give positive skin reactions.

Etiologic Factors

Several elements may be involved in the etiology of food allergy.

Predisposition

The first of these is an inherited predisposition to become sensitized. This factor is as important in food allergy as in disorders of hypersensitivity caused by allergens other than foods. One instance has been reported in which sensitivity to milk was transmitted through four generations. It is, however, more common to inherit the tendency to develop an allergic disease, rather than to inherit the disease afflicting the predecessor.

Altered Absorption

Another factor is altered absorption from the gastrointestinal tract, which may be due to organic or functional disturbances that upset digestive processes temporarily or permanently, thus changing mucosal permeability. Because of this chain of events, partially digested and consequently potentially antigenic food remnants are absorbed.

Overloading

A third element in causing allergic reaction is overindulgence ("overloading") in some one food eaten rarely. Examples of foods that may in this way cause transient allergic manifestations like urticaria include mushrooms, oranges, shellfish, and strawberries. Usually this type of reaction clears entirely when the offending food is eliminated from the diet. Overloading with certain foods by pregnant women may lead to sensitization of the fetus in utero; placental transfer of antigenic material is implied and may account for eczema and asthma noted at times in newborn infants.

Mother's Milk

Finally, transmission of minute amounts of antigenic material in a mother's milk to her infant may cause the child to develop a food allergy.

Foods Prone to Cause Allergic Reactions

It is pertinent to consider some general data regarding foods that cause allergic reactions. Those most frequently responsible include several categories. Of the cereal grains, wheat, barley, buckwheat, and corn are common offenders. Milk and eggs cause trouble more often in children than in adults. Fish and seafood are potent allergens, and group sensitivities on skin testing with them are noted. The same may be said of nuts; important members in this group are almond, cocoanut, walnut, pecan and hazelnut. Of fruits and vegetables, sensitivity to legumes is common, especially to peas, beans, and peanuts. Finally, allergic reactions to cottonseed, mustard, and chocolate are not infrequent.

Foods that may be very dangerous because of their marked antigenicity for some patients include fish, nuts, legumes, eggs, and milk. Trial feeding with any of these may be most hazardous. A fatality was reported some years ago as a result of a clinical test in which porridge containing peas was fed to a two-year-old child suspected of being sensitive. Death occurred after the third spoonful.

Factors That Affect Antigenicity of Foods

The antigenicity of foods may be affected by a variety of elements, one of which is the degree of sensitivity of the patient. The more sensitive the patient the greater will be the antigenicity of the offending food. The processes of digestion may decrease or destroy the allergenic properties of a food. Impaired absorption from the gastrointestinal tract will also be a limiting factor. Cooking will lessen the antigenicity of many foods, fish, however, being a notable exception to this generality. Finally, certain procedures employed in processing food for market, such as dehydration, precooking or heating may lessen significantly its antigenitic quality. One should bear in mind also that additives such as preservatives or stabilizers, and not the food itself, may be responsible for the reaction. Examples of such substances include vegetable gums, penicillin that has been added to milk, and chlortetracycline that has been used in poultry and seafood.

Clinical Manifestations

The clinical manifestations of food allergy as defined in this paper depend upon the location of the target tissue: the one containing the sensitized cells. Of the neurologic conditions ascribed to food allergy, migraine has been much discussed. Sheldon and Randolph[5] reported that 66 per cent of their patients with migraine were partially to completely relieved by eliminating putative offending foods; Rowe[6] noted good results in 63.5 per cent of 247 similarly-afflicted individuals treated with elimination diets. On the other hand, Vaughn and Black[7] ascribed to food allergy only seven per cent of a series of 508 cases of migraine. Also Rinkel[8] observed that food allergy is only one of several precipitating factors of migraine and expressed the opinion that it is not an allergic disease. My thinking is in complete agreement with his in this regard.

Cerebral

Convulsive disorders and psychoses have been reported, which allegedly have been caused by allergic reactions to food. Certainly such manifestations are very uncommon. In some instances, multiple sclerosis may develop consequent to an autoimmune reaction, but I know of no proof of food allergy causing such a chain of events.

Dermatologic Manifestations

Of the dermatologic manifestations, atopic dermatitis or eczema is frequently encountered, food allergy being a common cause especially in childhood and infancy, and the most usual offenders being eggs, milk, and cereal grains. In many instances, however, they decrease in importance with advancing age.

Contact dermatitis is another expression of food allergy. This comes about by contact of the food, for example, flour or rice powder, with the skin. Interestingly, individuals thus afflicted can eat the offending food without noting any effect on their skin. Not uncommonly bakers develop this type of food allergy.

Finally, urticaria and angioedema are other cutaneous manifestations; acute attacks of either are often due to food allergy. Foods commonly offending in this way are nuts, fish, eggs, uncooked fruits and vegetables, and peanuts. In some acute cases, overloading may be the precipitating factor. In chronic urticaria it is harder to establish a specific food as a cause, although some physicians believe, nonetheless, that allergy to food is important in a significant number of cases. Neurogenic

factors are often prominent in patients with chronic urticaria. Food allergy has been reported to cause purpura in rare instances.

Respiratory Manifestations

The respiratory manifestations of food allergy vary somewhat with the age of the patient. More commonly the sensitivity reactions to ingested food in children are asthma and allergic bronchitis, while in adults allergic rhinitis is a more frequent consequence. Hay fever may be aggravated by some foods eaten during the pollen season but tolerated with impunity the rest of the year.

Food allergens may provoke respiratory symptoms by inhalation. For example, bakers and housewives often get asthma from the flour they breathe. Curiously they can eat the same grains without developing asthma. In those allergic to wheat by inhalation, the skin test is quite reliable; while in those allergic by ingestion, the converse is true.

Asthma and allergic rhinitis also have been caused by the inhalation of odors of cooking fish. Some workers reported the isolation of a volatile substance responsible for these symptoms and capable of reproducing them.

Food Idiosyncrasy

Before getting into the discussion of gastrointestinal manifestations of food allergy (gastrointestinal allergy by previous definition), it is essential that the use of certain terms be clarified. Food allergy as originally defined (involving an antigen-antibody mechanism) is to be distinguished sharply from digestive symptoms due to factors other than hypersensitivity.

The term "food intolerance or idiosyncrasy" is used to designate gastrointestinal discomfort following the ingestion of foods which, because of their physical or chemical characteristics, provoke distress in nonallergic as well as in allergic individuals. Examples of such foods are (1) those hard for normal or allergic people to digest, for example, cucumbers, radishes, celery, and onions; (2) sugars of all types; which are not antigenic substances but cause diarrhea and flatulence in many people; and (3) fats regardless of the source, as they may cause in some individuals heartburn, epigastric distention, and abdominal pain. These symptoms, are not allergic manifestations.

To summarize this discussion of terms, the fact that the ingestion of certain foods is followed regularly by disturbing symptoms may indicate the causative substances but does not establish allergenicity of those foods, that is, food allergy (embracing an antigen-antibody mechanism).

Gastrointestinal Manifestations

Classic types of gastrointestinal manifestations of food allergy include anaphylactic shock; an acute rapid reaction which may start while food is still in the mouth and which is characterized by urticaria, angioedema, nausea, vomiting, diarrhea which may be bloody, violent abdominal pain, asthma, circulatory collapse, and death within a few minutes. A case of this type was observed not long ago in an individual sensitive to peanuts, who ate them inadvertently in a carrot salad. The patient recovered owing to the treatment immediately instituted by the resident physician.

Another type somewhat less explosive is acute food allergy. For example, within 10 to 15 minutes after a sensitive individual eats shrimp or food containing cottonseed oil, he develops burning in the mouth, angioedema of the eyelids, lips and tongue, generalized urticaria, allergic rhinitis and possibly some asthma, nausea, and vomiting.

The third type is so-called chronic food allergy. Belching, heartburn, chronic nausea, abdominal distention, pruritis ani, chronic fatigue, and "allergic toxemia" are a few conditions which some allergists have grouped under the designation "chronic food allergy." I believe it would be very difficult in most of the conditions mentioned to establish an antigen-antibody mechanism and thus justify their inclusion as examples of food allergy as set down in this discussion. If the ingestion of food has to do with any of them, it seems more likely that they are manifestations of food idiosyncrasy and not of food allergy.

Is chronic ulcerative colitis an expression of food allergy? I have thought not; but the possibility that it may be another disease with an autoimmune mechanism must be kept in mind.

Diagnosis

In making a diagnosis of food allergy, a number of approaches may be helpful. Inquiry should be made regarding a personal or familial history

of allergic disorders of any kind. Some investigators also feel that a patient's likes or dislikes regarding food may relate to the absence of food allergy.

Skin-Sensitization Tests

Opinions vary greatly regarding the accuracy and helpfulness of skin-sensitization tests: most agree that their value is limited. Positive reactions do not establish a diagnosis of food allergy and negative results do not exclude it. If the condition is suspected clinically, scratch tests that give negative results should be repeated intradermally.

Food Diary

A food diary may be useful if the patient's symptoms occur at intervals of weeks or months and if one suspects that they are due to food allergy. The patient simply keeps a record of any unusual food eaten in the 24 hours preceding the onset of his symptoms. After several attacks it should become apparent from the diary whether the ingestion of any specific food is common to all episodes.

Trial Diets

Trial diets are also employed in diagnosing food allergy, but it is beyond the scope of this paper to discuss these in detail. The starvation and build-up method (escalator) and the elimination diets of Rowe as well as of Alvarez should not be continued for long perods, as inadequate nutrition may result. With such programs new foods should be added as rapidly as tolerated to avoid a state of malnutrition.

Provocative Diet

The provocative diet was designed to circumvent this problem. It consists of several foods that commonly cause allergic symptoms and that also are major constituents of a normal diet, hence affording the patient an adequate caloric intake even if he follows it for a month or more. The ingredients of this diet are wheat, egg, milk, beef, potato, orange, sugar, and salt. If an individual has food allergy, it is quite likely that one of these foods is the offender, and if so the patient's symptoms will be aggravated within 48 hours after starting the diet. If this happens he is put back on a general diet, except that one of the foods of the provocative diet is eliminated. He follows this adjusted diet for five to six days; if no marked improvement is noted thereafter, the withheld food is replaced and another of the original small group eliminated. In this way one may go through the small list of foods rather quickly and determine which one is responsible for the symptoms.

If, on the other hand, after the patient has followed the original provocative diet for a week his symptoms are much less severe or are gone, this suggests that the symptoms are due to hypersensitivity to food, but not to any one food on the trial diet. He may then continue the trial diet and add a new food in liberal amounts for a trial period of three to four days. If no flare-up of symptoms is noted, the food is retained and another new one is studied in the same way. This type of investigation can go on for several months if need be without jeopardizing the patient's nutrition.

Other Procedures

Two other diagnostic procedures might be mentioned briefly. The leukopenic index is based on the idea that leukopenia follows the ingestion of a food to which a patient is allergic. There are too many fallacies in the execution of the test and its concept to warrant any confidence in it as a clinical diagnostic tool. Coca's test is based on the hypothesis that the pulse rate increases significantly after a person ingests a food to which he is allergic. There are no other published reports on the efficacy of the test except those of Coca. Eosinophilia is of doubtful value in establishing a diagnosis of food allergy, although Rosenblum and Matheson[2] expressed the opinion that eosinophilia in the stool may be of significance in this regard in some infants.

Treatment

The treatment of food allergy is suggested by the preceding discussions. Most important is elimination of the offending food from the diet. Oral desensitization rarely is possible and attempted hyposensitization by injection not only is ineffective but may be hazardous. If some type of elimination diet is used, one must be sure that the substituted foods provide an adequate dietary program. In planning this, foods of low antigenicity are used and new foods are added to the restricted diet as fast as the patient's tolerance will permit. One may also try to replace offending substances with processed, dehydrated,

or denatured foods. Steroids do not prevent allergic reactions to foods. Antihistamines are less effective in the gastrointestinal manifestations of food allergy than in allergic rhinitis or urticaria caused by it.

There has been observed some natural tendency toward loss of sensitivity if a food allergen is avoided. The length of time a patient must avoid a food before he can tolerate it again varies from a few months to many years.

In the management of acute food allergy and anaphylactic shock, promptness in getting treatment under way is of the essence. Repeated injections of epinephrine are most important. Hydrocortisone and antihistamines should be given intravenously. Inhalations of oxygen may be employed if warranted. Finally, to support a falling blood pressure, mephentermine sulfate (Wyamine Sulfate), 30 to 45 mg., or ephedrine sulfate, 12.5 to 25 mg., should be administered intravenously. If such measures are instituted immediately, the patient's chance of survival is greatly enhanced.

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WHAT'S YOUR DIAGNOSIS?

A 46-year-old white female was admitted to the hospital on November 3, 1962 because of "weakness" of four weeks duration. The past history was negative. She noted the onset of progressive sleepiness for the past month and noted intolerance to cold. About seven days after the onset of her illness she developed a frontal headache which has persisted. In the past month her weight had fallen from 120 to 105 pounds.

The physical examination revealed her to be lethargic and slow to respond. She would fall asleep during the interview but would awaken to questioning. Increased facial hair was evident. It was thought that tunnel vision was present, but she could not co-operate sufficiently with the ophthalmologist for confirmation of this point. Blood pressure was 100/60; pulse was 80. No abnormalities of ear, nose, throat, chest, heart or abdomen were noted. The neurologic examination revealed seventh nerve weakness on the right was present. Equivocally a positive Babinski sign was found on the right, and the Rhomberg sign was positive with the patient falling to the right.

On November 7, 1962 she had developed a right hemiparesis and was not responsive. On November 11, 1962 fundoscopic examination showed engorgement of the veins but no papilledema. That evening she was pronounced dead.

What's your diagnosis? Turn to page 146.

"Death does remind us of our fundamental equality before God." — Maurice Cardinal Feltin, Archbishop of Paris.

Giant Duplication of ILEUM

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DUPLICATIONS OF the alimentary canal and the interesting clinical problems which they present, as well as the various types of this malformation, have been recognized for over a hundred years.[1] They have been reported in the literature under such descriptive terms as "enterocystomas", "enterogenous cysts", "enteric cysts", "gastric thoracic cysts", "giant diverticula" and "ileum duplex": Publications by Ladd and Gross[2] in 1940 and Gross[3] in 1953 served to standardize the nomenclature by suggesting the use of the generic term "duplications of the alimentary tract" as an all-inclusive name for the many varieties of these anomalies. These authors also presented a well-organized discussion of the embryology, pathology, diagnosis and treatment of duplications in their various locations in the alimentary canal from the base of the tongue to the anus. More recently, Anderson, Silberman and Shields[4] reviewed alimentary tract duplications appearing in adult patients, reporting three new cases. They also discussed recent etiological considerations and terminology.

Types of Duplication

Duplications may be spherical or elongated. They are usually, although not necessarily, attached or adherent to some part of the alimentary tract.

The Epithelial Lining

There is a smooth muscle wall, and an epithelium lining, which resembles that of some part of the alimentary tract but does not necessarily correspond to the mucosa of the level at which

the duplication occurs. Variants in the epithelial lining may occur: the columnar membrane, bearing cilia, which appears early in the embryological development of the upper alimentary tract, may persist in high duplications; other duplications may contain a lining varying from simple mesothelium to a complex respiratory form, or the epithelial lining may be partially or completely destroyed.[4]

Duplication Level Inconsistency

Since the epithelial lining of a duplication does not necessarily correspond to that of the level at which the duplication occurs, it is not uncommon to find duplications at various levels, which are lined with functioning gastric mucosa which secretes acid and pepsin. Black and Benjamin,[1] in 1936, reported a thoracic "enterogenous cyst" complicated by peptic ulceration and hemorrhage, and referred to an 1851 report of a similar duplication cyst within the thorax. Many ileal duplications which contain a gastric mucosal type of lining have been reported.

The patient whose case history we wish to report had a huge duplication of the ileum, which was lined with gastric mucosa. One of the unusual features of the complicated illness was the long interval of thirty-three years between the onset of symptoms and the final solution of her problem. Other interesting aspects of the case were the associated deformity of the spine with compression myelitis and a second duplication which was unattached to the alimentary tract.

Case Report

A single, white female, age 36 years, was admitted February 23, 1954, because of severe hemorrhage from the gastrointestinal tract. She had an abdominal sinus of surgical origin which had been present for thirty-three years. Her weight was 80 pounds. She had a severe kyphosis.

The patient had had five previous admissions to our hospital because of the same problems, the first admission being in October 1950. She had been treated elsewhere on numerous occasions, beginning in 1921 when she was three years of age. She was partially or completely incapacitated during this entire time, although from age nine to 16 she was able to attend school half-days.

Past Medical History

The presenting complaint in 1921, at the age of three, was that of abdominal swelling and pain of nine months duration. A large mass filled the entire right abdomen. There was kyphosis of the dorsal spine with X-ray evidence of compression of the fourth, fifth and sixth dorsal vertebrae. The hemoglobin was 35 per cent.

The Initial Operation

Surgical exploration in 1921 showed a thick, edematous peritoneum. There was a large cyst in the right lower abdomen, described as adherent to adjacent structures. A thick, mucilaginous, slightly turbid, odorless fluid was aspirated from the cyst. A drainage tube was inserted into the cyst and brought out through a stab wound in the right lower abdomen. The initial surgical diagnosis was "retroperitoneal cyst with chronic peritonitis."

Subsequent Surgery

About ten weeks after the orginal operation a localized collection, of odorless, mucilaginous fluid was drained through an upper abdominal incision.

One year after the second operation the patient returned with a recurrent mass in the abdomen. A third operation was performed, at which time the anterior wall of the cyst was opened and attached to the abdominal wall. A drainage tube was left in place.

The patient returned repeatedly during the next twelve years for reinsertion of the drainage tube.

Re-evaluation

In 1934, at the age of 16, the patient was thoroughly re-evaluated. The sinus tract was still open. There was continuous, profuse drainage of foul, thin, serous fluid which was occasionally black. There was no fecal drainage at any time. It was necessary to keep a drainage tube in the sinus tract at all times; otherwise the tract would close over and the abdomen would become swollen and painful. Since 1930 (four years previously) there had been free bleeding from the sinus tract for three days at a time at fairly regular intervals of about four weeks.

At the time of this re-evaluation in 1934, in addition to the problems connected with the abdominal sinus tract, it was also noted that the dorsal spinal deformity persisted and there was a classical picture of a diffuse toxic goiter. This latter problem responded well



Fig. 1. Posterior view of the patient taken in 1962, showing the persisting dorsal kypho-scoliosis. Such deformities are reported coexistent with duplications of the alimentary tract.

to subtotal thyroidectomy. It was also noted at this time that the patient's weight was only 63 pounds.

The patient returned at regular intervals from 1934 to 1940 for reinsertion of the drainage tube.

In February 1941, at the age of 23, she returned because of unusual bleeding from the sinus tract, which had persisted for three weeks. Her hemoglobin was six grams. With rest and transfusions the bleeding stopped.

In October 1943 she was seen again because of slight bleeding from the sinus tract.

Neurologic Changes

The patient returned in January 1945 complaining of progressive weakness of the legs and difficulty in walking during the previous four months. Her legs were spastic and there was loss of vibration sense, joint sense, touch, pain and temperature to above the knees. The tendon reflexes were exaggerated and the Babinski reflex was positive on both sides. Another X ray of the spine showed the marked dorsal kyphosis with scoliosis to the left. A diagnosis of compression myelitis was made. It was also noted that there had been no additional bleeding from the sinus tract for two years; but the patient continued to have episodes of abdominal pain.

From January 1945 until October 1950 the patient was managed at home by her family physician, requiring very little medical attention during this interval. There was no significant bleeding from the sinus tract. The compression myelitis gradually cleared up over a period of about a year and a half without specific treatment. There were occasional episodes of abdominal pain.

Recurrent Bleeding

The patient was hospitalized in the St. Olaf Hospital, Austin, Minnesota for twelve days in October 1950 because of severe bleeding from the lower bowel. There was no bleeding from the sinus tract, which continued to drain a clear, moderately irritating fluid. Abdominal pain and nausea were present. A lower abdominal mass was palpable. The initial hemoglobin was 60 per cent. Five units of whole blood were given. Surgical intervention was considered at this time but rejected by the patient and her family.

In July 1951 the patient was readmitted because of profuse bleeding from the lower intestinal tract. Severe abdominal pain was present. There was a mild state of shock. The hemoglobin was 26 percent. She improved rapidly, following whole blood transfusions.

The patient was hospitalized again for twelve days in November 1951 with another episode of severe abdominal pain and exsanguinating hemorrhage from the lower bowel. She again responded promptly to conservative treatment.

There was then a period of two years during which time the patient felt well and had no further bleeding from the bowel or the sinus tract, but in December 1953 she was readmitted in extremely poor condition because of massive intestinal hemorrhage. Fifteen units of whole blood were required and the patient was hospitalized for thirty- six days. The lowest hemoglobin on this occasion was 5.8 grams.

Definitive Surgery

Three weeks later, on January 28, 1954, the patient was again readmitted with severe intestinal bleeding. This time nine units of whole blood were required.

Continual bleeding from the lower bowel brought the patient back to the hospital on February 23, 1954. By this time she and her family were willing to accept surgical intervention. Preparation of the patient and preoperative diagnostic studies were started after the intestinal bleeding subsided. A sigmoidoscopic examination and a colon X ray were normal. Also normal were gallbladder and upper gastrointestinal X rays. The admission hemoglobin of 7.7 grams gradually rose to a preoperative level of 15 grams. The vital capacity was markedly reduced. Unfortunately, a chemical analysis of the fluid from the sinus tract was never made and an attempt to visualize the sinus tract by the injection of radio-opaque material was unsuccessful. The patient weighed 80 pounds.

An operation was performed on April 5, 1954. The preoperative diagnosis was "mesenteric or pancreatic cyst with intestinal erosion and external fistula." The fistula extended into an empty, thick-walled cyst which was intimately adherent to the terminal ileum over a distance of 15 cm. and extended eight cm. downward within the mesentery of the ileum. Its blood supply was the same as the blood supply of the terminal ileum. The fistula, the cyst and the terminal ileum were resected without unusual difficulty and the continuity of the ileum was re-established by end-to-end anastomosis.

Diagnosis Established

The postoperative diagnosis of "duplication cyst of the ileum" was confirmed by pathological examination The muscle layers of the duplication were almost one cm. in thickness in some areas. The mucosa contained intestinal glands and gastric glands of the body and antrum. There were areas of ulceration and chronic inflammation on the mucosal surface.

The patient's postoperative course was uneventful. She was discharged on the ninth postoperative day.

In October 1955, about a year and a half after the definitive surgery, the patient returned with moderate bleeding from the lower bowel, which developd after an episode of acute enteritis. Gastrointestinal X rays were negative except for slow passage of the barium through the terminal ileum and evidence of some deformity in this area. Surgical exploration in November 1955 revealed a mechanical defect at the site of the old anastomosis of the ileum, there being an indurated, redundant pouch of bowel on one side of the anastomosis. The mucosa within this segment of the bowel showed many superficial ulcers. The anastomosis was resected and the continuity of the ileum re-established.

Exploration of the abdomen at this time revealed a 6 x 4 x 2.5 cm. cystic mass at the base of the mesentery of the transverse colon. The cyst was not adherent to the colon nor was it contained within the mesentery of the colon. Its blood supply was from the inferior mesenteric artery. Pathological examination of the cyst revealed that its wall was eight mm. in thickness and contained two layers of smooth muscle covered with a lining of columnar epithelial cells. A nerve plexus comparable to that of Auerbach-Meissner was present within the smooth muscle layers.

The patient's postoperative course was again uncomplicated. She was discharged on the eighth postoperative day.

The last follow-up visit was in 1962, six and a half years after the second operation. The patient had remained free of gastrointestinal problems.

Summary

The medical history of a patient with a large duplication of the ileum complicated by repeated hemorrhages from a fistulous tract of surgical origin and from the intestine has been outlined. Surgical cure was accomplished after thirty-three years of invalidism.

The coexisting spinal deformity with a

transient period of compression myelitis is of interest in view of other reports of spinal deformities associated with duplications of the alimentary tract.

A second, smaller cyst was found, which fulfilled all of the usual criteria for classification as a duplication of the alimentary tract except that it was not attached or adherent to a part of the alimentary tract. Other examples of this variant have been recently reported.

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MARFANS SYNDROME
(Lincoln's Syndrome)

Marfan, in 1896, first described the skeletal abnormalities of arachnodactylia, a condition in which the bones of the fingers and sometimes the toes grow extremely long and thin. The condition is hereditary and transmitted as a dominant trait, may be familial, and occurs in either sex.

There is an elongated, slender body build with long, thin fingers which may be webbed, poor muscular development, meager subcutaneous fat, laxity of joints and ligaments, funnel-shaped deformity of the chest, kyphosis, dorsal scoliosis, flat feet and hammer toes. Other characteristics include a dolichocephalic skull (elongated), prominent ears, high forehead, and a high palate. The face may present a melancholic expression. Mentality is normal.

Approximately 50% have myopia, strabismus, nystagma, or miosis. There may be cardiac valvular deformities, and an aneurism of the aorta is present in 50%.

The arm span exceeds the body height. The voice is sometimes rather high-pitched

Some descriptions of Abraham Lincoln suggest that he may have had the Marfan syndrome. At age 16 he was six feet two inches tall and weighed 160 pounds. He was slim, wiry, and his legs were long. He suffered strabismus, and at 51 years of age he had several attacks of double vision. This might have been ectopia lentis, often found in Marfan syndrome. He had a high-pitched voice, and his ears were large and malformed. Abraham Lincoln did pose some of the physical characteristics of a Marfan syndrome, but the image of the great emancipator continues to remain enigmatic.

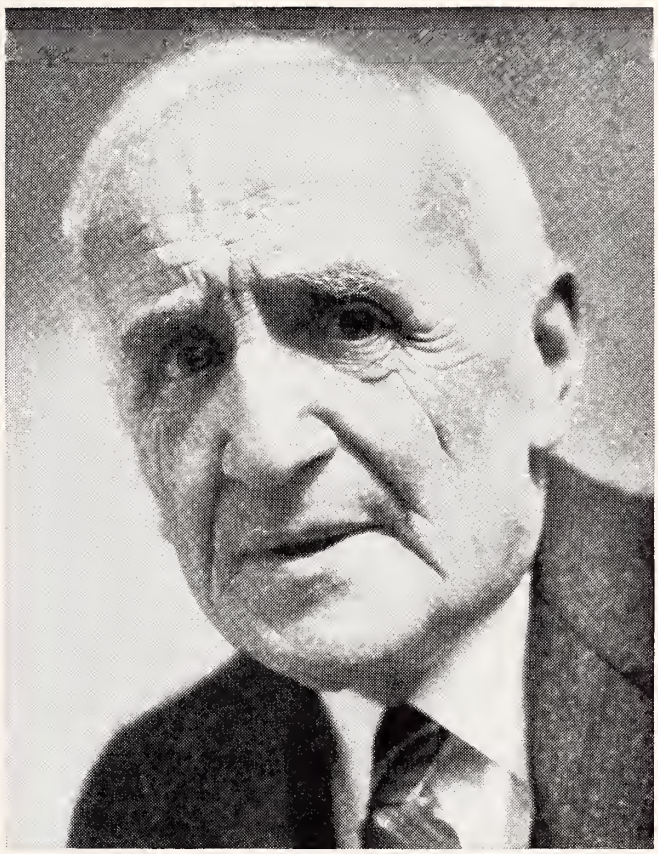
*Gordon, A. M.
Abraham Lincoln Journal
Kentucky Medical Association
Vol. 60, 1962

ANSWER TO WHAT'S YOUR DIAGNOSIS

(From page 142)

Glioblastoma multiforme.





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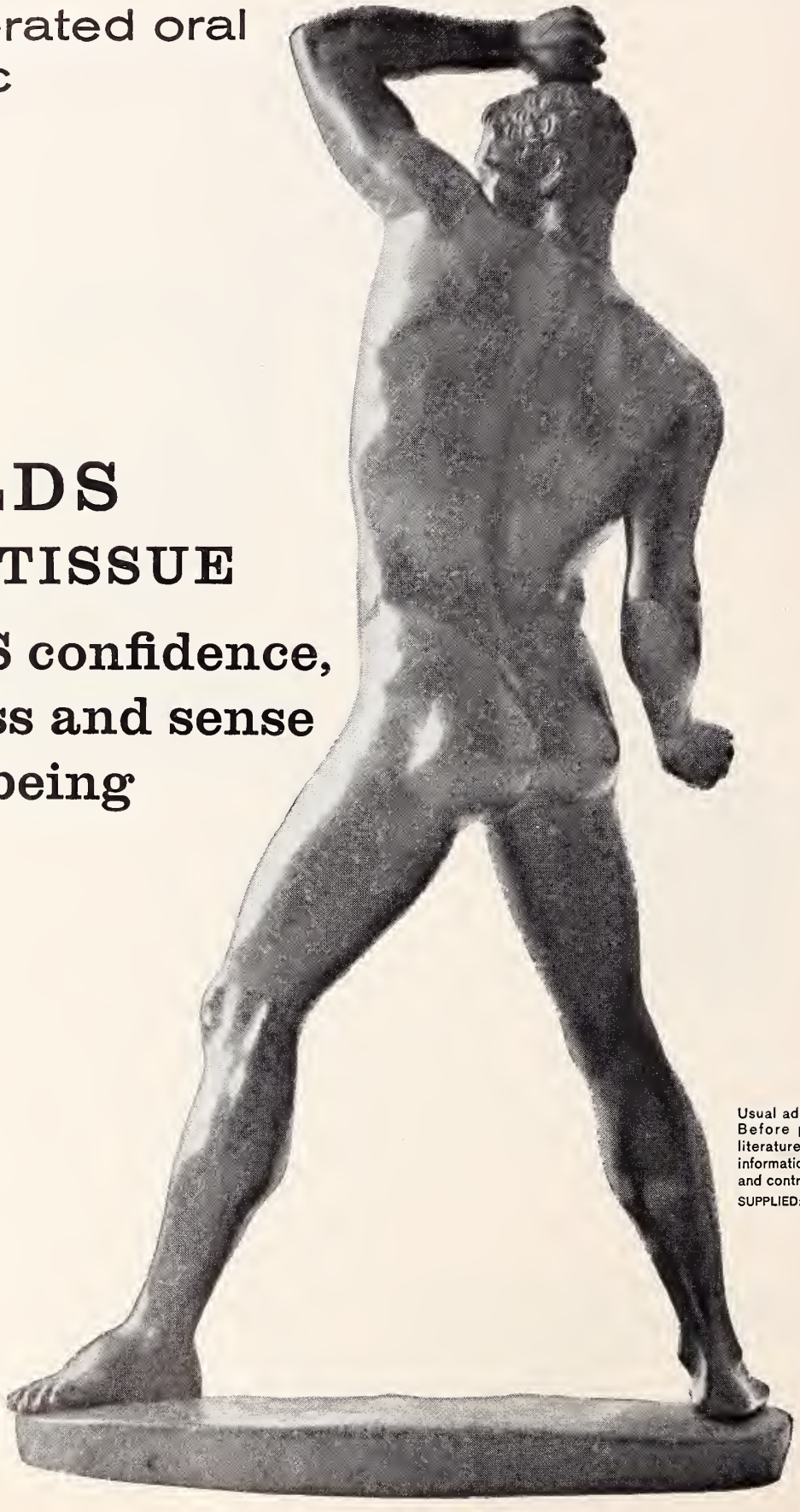
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Editorials



Coarctation of the Aorta and Bicuspid Aortic Valve*

So COMMON is the association of coarctation of the aorta and congenital bicuspid valve that their occurrence together may be viewed as a developmental complex. The clinical manifestations of coarctation are well known. Further emphasis is required, however, of the fact that the congenital bicuspid valve need not be an innocuous condition. This deformity may be associated with significant intrinsic incompetence. Furthermore, the bicuspid valve has a strong tendency to become complicated by calcific stenosis or by bacterial endocarditis. These manifestations or complications of the congenital bicuspid valve may be observed in some patients with clinical signs of coarctation.

Moreover, the clinician is to be aware that the patient surgically cured of coarctation may yet, in the future, have a price to pay with respect to one or another form of aortic valvular disease. It is likely that physicians of tomorrow will have the recurring experience of observing patients with calcific aortic stenosis who will give a history of having had surgical cure of coarctation many years earlier.

In this issue of Minnesota Medicine, the communication of Grismer and Weisberg[1] supplies evidence that the lesion of so-called pseudocoarctation of the aorta is fundamentally the lesion of coarctation but with an insignificant degree of aortic obstruction. The undersigned would concur with this view and go further by including rather than excluding, as these authors have done, the state called "buckling" or "kinking" of the aorta in the same category as so-called pseudocoarctation.

Viewing the material of Grismer and Weisberg, it becomes apparent that a strong thread of aortic valvular disease is woven through the cases.

Accepting coexistent coarctation and congenital bicuspid aortic valve as a developmental complex, we may view pseudocoarctation or buckling of the aorta as a *forme fruste* of coarctation. The element of the complex which is the bicuspid aortic valve, however, has as great a tendency to be present when the coarctation is fully established and significant, as when it presents as a *forme fruste*.

Jesse E. Edwards, M.D.
Minneapolis, Minn.

Reference

1. Grismer, J. T. and Weisberg, R. J.: "Pseudocoarctation of the Aorta—A Misnomer. Minn Med Vol 46 Feb:128

*Supported by Research grant HE-5694 of the National Heart Institute, United States Public Health Service.

Whiplash Psychosis

WHIPLASH IS not a medical term. The use of this psychosis-inducing expression should be decried and avoided by all doctors who are interested in keeping nomenclature of medicine on the scientific plane where it belongs. This term should be consigned to the medical ashcan along with bumper fractures, dashboard injuries, steering wheel myocardiums, railroad spines, and a number of other cognominal expressions.

The word has a cruel, destructive, vengeful connotation, and might more aptly refer to the abnormal behavior of a masochist, a sadist, or a pervert. It has come to be used by the jury-influencing plaintiff's attorney and his easy-money-seeking client as the currently popular expression for neck strain sustained in a rear-end collision. If a man strains his neck in a fall from a hayrack or while painting the garage ceiling or putting up storm windows or gazing at a satellite, should we coin sinister terms for these injuries and add them to our medical dictionaries?

Continued

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The orthopedic surgeon who confesses to having coined the term whiplash need not be condemned for its perpetuation, because he has long since regretted the use of this counterfeit word. Most physicians who are interested in being factual prefer to use a completely acceptable scientific term, though they sometimes slip into the bad habit of using a popular expression. The 'sawbones' or the 'hi-doc' antediluvian might be excused for such a colloquialism, but a modern, scientifically-trained physician should not allow himself to use the term.

The attorney for the plaintiff, however, seems to prefer to insert the persuasive value of whiplash into the minds of the jury, who can readily visualize the savage destruction at the end of a blacksnake whip as it cracks accurately to its objective. What additional convincing plea need be made than to have a doctor, a court qualified expert, use the term whiplash before a jury, when referring to a mere neck strain? Emphasis on the word can produce emotional distortion in the minds of an otherwise sensible jury, and when the attorney insists upon inserting the term whiplash into the doctor's testimony it should seem obvious that he is doing so for the sole purpose of producing an emotional illusion. Many recipients of this type of neck strain have probably developed a temporary psychosis which may have been doctor-or-attorney-induced.

In reviewing 101 so-called whiplash injuries, Gotten[1] found that after litigation was settled, 88 percent of the litigants had recovered. It was pointed out that the great difficulty in evaluating the whiplash type of injury is due to the complicating factor of monetary compensation.

In the obviously severe rear-end-collision neck injury in which there may be compression fracture of the cervical vertebra, cord damage, paralysis, dislocation, or evident nerve injury, no doctor should have any difficulty in making a correct prognostic evaluation. In the group without definite organic findings, but in which there may be ligamentous strain or sprain, prognostic opinions vary widely. The doctor testifying for the plaintiff is inclined to suggest that his patient will suffer permanent damage, whereas the doctor testifying for the defendant believes on the whole that the effects of ligamentous strain of the neck, just as any other strain, will heal without disability.

Though most doctors may be firm in their convictions, the wide diversity of expert opinions makes it all the more difficult for an emotionally-susceptible jury to come to an unbiased verdict. The term whiplash is not medical, legal, scientific, professional, or factual; as Attorney Stanley Stewart[2] has suggested, it should, by a pretrial motion, be barred from use in medical phraseology at all times, both in and out of court; for it serves no purpose other than that of producing unwarranted apprehensions in everyone who hears the term.

Carl O. Rice, M. D.

1. JAMA 162:865, 1956.
2. Chairman of the Board of Directors of Defense Research Institute.

Letters to the Editor:

Court Room Etiology

In the November issue of Minnesota Medicine (45, 1116, 1962), under the title of "Court Room Etiology," the following is found:

"In my day when I got hit in the eye it turned black and blue promptly; sometimes even before I could get home.

In courtroom testimony it seems that the currently popular question is to ask the doctor whether it is not possible to feel the first effect of an impact a few weeks after the accident.

I would think it almost as logical in this modern day, when everything is accelerated, to expect the swelling, discoloration, and pain to develop before the blow."

Continued

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WHILE THESE comments are intended to be facetious and even critical of some of our modern practices, they are, as a matter of fact, very illuminating in respect to one facet of medicine in this ultrascientific age, namely, the decline in simple, direct clinical observations and the failure to use prompt, simple therapeutic measures.

In my youth when one got hit in the eye, something was done before he went home; many a "shiner" no doubt was aborted by applying cold beefsteak or even cold mud. But the application of cold has a wider and more important use. In 1951 I emphasized its value in the management of hemophilia (JAMA 145, 4, 1951). When cold is promptly applied to a fresh injury and maintained, not for a few minutes but for hours, serious bleeding can often be prevented. The judicious use of cold, of pressure where it can be applied, and of fresh or fresh-frozen plasma transfusions has vastly improved the lot of the hemophiliac, as any physician who has had the opportunity to compare the treatment of today with that of 25 years ago can testify.

The question of whether or not it is possible to feel the "first effect of an impact a few weeks after the accident" cannot be dismissed lightly. An observation which I have made repeatedly is that of delayed bleeding in the hemophiliac following a minor contusion. For example, a hemophiliac in a leg cast fell. He was brought to the hospital, where, on careful examination, no injury was found; but five days later a large bruise was observed on his chest and another under his jaw. Obviously, when he fell, his crutch hit his chest and jaw.

An explanation can be offered: Even a slight contusion causes tissue injury, but when blood coagulation is normal, the tissue repair process is prompt and effective. Overlooked is the probability that one of the most important functions of the coagulation mechanism is tissue repair and that the deposition of fibrin is perhaps the first step in this process. In defective blood clotting, as found in hemophilia, tissue repair is defective. Thus, several days after a contusion, a necrotic breakdown may occur, whereupon hemorrhage ensues.

The recognition of delayed bleeding in a disease such as hemophilia may be of utmost prophylactic importance. Any bleeder, even though mild, who receives a serious injury, especially of his head, chest, or abdomen, may thus show no signs of bleeding immediately, but several days later may die of a massive hemorrhage. I have the history of several instances following automobile accidents. It seems therefore highly advisable that any hemophiliac who has sustained a serious injury should receive a daily transfusion of fresh-frozen plasma for several days.

It may be difficult for the clinician to keep abreast of the theoretical developments in the field of blood coagulation and the hemorrhagic diseases, but that does not disqualify him from successfully treating hemorrhagic states, provided he is familiar with certain basic facts that have not changed, even in this accelerated age. Cold still brings about contraction of blood vessels; pressure applied to a contusion tends to prevent the escape of blood from a vessel; and a transfusion of fresh-frozen plasma corrects temporarily the coagulation defect of various bleeding diseases, particularly the hemophilias and hypoprothrombinemias.

Armand J. Quick, Ph. D., M. D.*
Milwaukee, Wisconsin

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*Professor of Biochemistry and Director of the Department, Marquette University School of Medicine.

The natural man has only two primal passions — to get and to beget.—William Osler

---

Life is easier to take than you think; all that is necessary is to accept the impossible, do without the indispensable, and bear the intolerable.—Kathleen Norris

---

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Curbstone Consultation

Exophthalmic Goiters

QUESTION: I have not seen exophthalmic goiters as often as I used to years ago. Recently I saw one with quite typical symptoms. What is the best method of treatment . . . medicine or surgery? I would appreciate some details.

M. D. Minneapolis

ANSWER: The definitive treatment of exophthalmic goiter depends upon the patient's age and general medical condition. For patients over the arbitrary age of 40, radioactive iodine is the treatment of choice by most experts in the field. Radioactive iodine as definitive therapy is generally not given to patients under the age of 40 for fear of inducing leukemias or gonadal effects. For these patients, subtotal thyroidectomy is the definitive treatment. Should the patient under the age of 40 have complicating features, however, such as coexisting cardiac disease, then radioactive therapy may be elected.

Whatever the definitive therapy, the patient must be properly prepared first. If surgery is planned, an antithyroid drug is given, usually Propyl Thiouracil in a dosage of 300-600 mgms. per day in divided doses. The individual doses are best given 6-8 hours apart since the duration of action is relatively brief. It is often necessary to continue this therapy for one or two months before the patient is euthyroid. Lugol's solution, in a dose of ten drops per day, is started at three or four weeks prior to the date of surgery, to cause involution of the gland. If the patient is properly prepared, thryoid storm following thyroidectomy should not be a problem.

In the patient who is to receive radioactive iodine as the definitive treatment, preparation with Propyl Thiouracil, similar to that described above, may be necessary for the more toxic patients. The drug is stopped several days before the radioactive iodine is given. For the patient who is only mildly toxic, the radioactive iodine may be given initially, followed after one week by the use of Propyl Thiouracil, if the patient is sufficiently toxic. When radioactive iodine therapy is used, it is important to bear in mind that several months may elapse before the full effect of the treatment is evident.

Long term drug treatment with Propyl Thiouracil for exophthalmic goiter may be attempted but is complicated by the fact that a fair number of patients will become thyrotoxic again when the drug is stopped after a year, and that others may develop drug reactions or become resistant to the effect of the drug. Where the thyrotoxicosis is mild in degree or where the patient refuses both surgery and radioactive iodine therapy, then long term drug therapy may be indicated.

Pericarditis

QUESTION: Do you recommend the use of steroids in pericarditis?

M. D. Mankato

ANSWER: Salicylates should be used first and steroids should be reserved for the patients who do not respond to salicylates. Forty to fifty millograms of Prednisone daily is usually sufficient.



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Abstracts and Briefs

LYMPH FLOW IN CIRRHOSIS

The authors have cannulated the thoracic duct in 20 patients with Laennec's cirrhosis. Large dilated ducts were found with a flow rate of from 2 to 12 cc's per minute, normal being 1 cc or less. This lymph was of a bloody, high protein character, containing sufficient red cells for an hematocrit of from 1 to 21%. The duct pressures varied from 15 to 70 cms of saline; the normal range is 6 to 15 cms. The authors observed a splenic pulp pressure drop of 11 cms. after 20 minutes of drainage. In some cases liver edge regressed upward 3 to 5 cms, after drainage of 3 to 5 liters of lymph. In 7 cases the ascites receded and in 5 cases disappeared completely. In all cases the ascitic fluid reaccumulated gradually after the removal of the drainage catheter. The changes occurred within 48 to 72 hours, that is, by the time 3 to 4 liters of lymph was collected.

In a few cases bleeding, esophageal varices were controlled upon drainage and recurred upon elevation of the thoracic duct pressure.

As the authors have stated in their summary, it is interesting that the simple surgical maneuver, performed on a lymphatic in the neck, effects changes usually identified with successful Porta-Caval shunt.

These studies are obviously in the nature of investigations into the fundamental nature of the dynamics of the portal hypertension problem. However, they present intriguing possibilities for more simplified management, at least of the immediate control of the bleeding problem, with the potential for expansion to more definite management.

J. H. Strickler, M. D.
Minneapolis, Minn.

Dumont, A. E., Mulholland, J. H.: "Alterations in Thoracic Duct Lymph Flow in Hepatic Cirrhosis" Ann Surg 156:668. Oct 62.

CENTRAL VENOUS PRESSURE

The difficulties encountered in attempting to maintain an optimal blood volume in the critically ill patient are discussed. In the attempt to assist the many clinical and laboratory evaluations commonly used to aid optimal blood and fluid replacement the authors have studied the use of monitored central venous pressure as a useful guide. The technic may be useful as an index of the circulating blood volume relative to the cardiac pump capacity.

The central venous pressure is monitored with a polyethylene catheter introduced into the superior vena cava by means of percutaneous puncture of the subclavian vein. The catheter may simultaneously be employed for administration of fluids. Thrombosis has not been a problem at this site, but instances of pneumothorax have occurred.

Emphasis is properly placed on the correct physiological interpretation of pressure changes and correlation with general appearance, pulse, urine output, arterial pressure and so forth.

Several case histories are presented to demonstrate the application of the method. Individual variations in pressures, just as in optimal blood volumes, require attention to trends rather than actual single level determinations.

The described technic would appear to be a useful adjunct to the evaluation of dynamic physiological changes in the management of severe blood loss, particularly in the elderly or the patient with compromised cardiac or pulmonary reserves.

Robert N. Hammerstrom, M.D.
Minneapolis, Minnesota

Wilson, John N., Grow, John B., Demong, Charles V., Prevedel, Arthur E., and Owens, J. C. "Central Venous Pressure in Optimal Blood Volume Maintenance" Arch Surg 85:563, Oct. 1962.

CARCINOMA OF LUNG

Analysis of 1,011 cases of bronchogenic carcinoma leads the author to the conclusion that radical pneumonectomy with inclusion of regional lymph nodes is the preferred procedure, if the patient's condition is favorable for a procedure of this extent. Long-term "cures" may be obtained in many instances with lesser procedures, even wedge resection, but they should be reserved for cases in which the lesion appears to be limited to a lobe or segment, and in which it is likely that the patient is unable to withstand the more extensive procedure of pneumonectomy.

Courtesy of References and Reviews
The Journal of the American Medical Association

Young, G. A., Ellis, F. W., and Reingold, I. M. Dis Chest 42:257 Sept. 1962.

Continued



they never even had a chance to complain about the cost of drugs

Walk through any older cemetery, and you will find the same ugly story repeated many times. Died, age 30 years... died, age 8 years... died, age 6 months.

Sometimes, you will see evidence of entire families being struck down almost simultaneously. You wonder, was it influenza? Diphtheria? Infectious diarrhea? Or a host of other diseases whose very names were synonymous with terror?
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There are many reasons why you don't see a continuation of these tragic stories today – not the least of which has been the dedication of American physicians and the quality of medical education. And another, we sincerely believe, has been the quality of medicines which have been made available.

Yet, the value of independent drug research has been seriously challenged – research which has, in the past 30 years alone, helped to add nearly 10 extra years to the average lifespan in the United States. Yet, because the cost of the search must be reflected in the price the patient pays for a prescription, is it too expensive to continue? Unfortunately, perhaps those who might have the best answer can offer only silent testimony.

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LEUKEMIA THERAPY

From their review of 50 cases of acute leukemia in adults, the authors recommend that 6-mercaptopurine be the initial treatment for this disease and that steroids be reserved for acutely ill patients and for those resistant to the action of 6-mercaptopurine. Although steroid added to initial therapy with mercaptopurine resulted in a slight but definite prolongation of life and significantly influenced the disease in a larger number of patients than did mercaptopurine alone, these advantages were achieved at the expense of many serious side-effects.

In addition to mercaptopurine, prednisone was used in 20 cases, methylprednisolone in 13, and cortisone acetate in 3. The daily dose for the first 2 weeks was 60 to 100 mg. of prednisone or its equivalent. If there was no response, 40 to 60 mg. of prednisone (or equivalent) was given daily for the next 2 weeks before steroid therapy was gradually withdrawn. If 2 weeks of therapy produced a response, the daily dosage was reduced and the steroid was gradually withdrawn over a further period of 3 to 4 weeks. If there was an initial response and reduction of the daily dose of steroid resulted in frank clinical and hematological relapse, the authors administered the minimum dose necessary to maintain symptomatic relief and did not attempt to reduce the dose further unless serious side-effects developed. Mercaptopurine, whether given with or without steroids, was administered at a dosage of 2.5 mg/kg/day to a total of 6 to 8 Gm. over a period of 4 to 6 weeks.

In the 36 patients given 6-mercaptopurine and steroids, the incidence of response was lower in patients with monoblastic leukemia than in those with the other morphological types. The over-all response to mercaptopurine without steroids was complete remission in 3, partial remission in 2, and no response in 9. The response to mercaptopurine plus steroids was complete remission in 12, partial remission in 11, and no remission in 13. Although the response to mercaptopurine alone occurred only after 2 to 3 weeks of therapy, most responses to mercaptopurine plus steroid were evident within 10 days.

Courtesy of Abstracts
Farley Manning Associates
New York, New York

Bridges, J. M., Hayes, D. M., Nelson, M. G.
Brit. J. Cancer 16:46, March, 1962.

PAINLESS PANCREATITIS

Occasionally, acute pancreatitis may present with coma, or stupor, or shock as the only symptom. When this occurs, the absence of the usual findings of abdominal pain and tenderness may lead to consideration of other diseases. Nine autopsy-proved cases are presented, 2 in detail, in which only symptoms of coma and shock were present on admission. None of these cases was recognized prior to postmortem examination, although pathologically they differed in no way from patients with the usual symptoms. The point emphasized is that acute pancreatitis should be considered in any patient manifesting sudden coma or shock, new or resistant diabetic acidosis or coma, or atypical symptoms suggesting a myocardial infarction or cerebrovascular accident, even in the absence of abdominal pain.

Courtesy of References & Reviews
The Journal of the American Medical Association

Toffler, A. H., and Spiro, H. M.
Ann Intern Med 57:655 Oct. 1962

BILE DUCT PHYSIOLOGY

By means of cinefluorography, with simultaneous intraductal pressure measurements, the authors have restudied some aspects of common bile duct physiology. Twenty-eight studies were made in sixteen patients with T-tubes during the three week period following surgery. In addition to the above studies electrocardiographic and respiratory excursion tracings were also recorded. Pressure measurements were made under standard conditions with a stable continuous infusion of radio-opaque dye. The effect of nitroglycerin, amyl nitrite, morphine, demerol and probanthine were compared. Histological study of the common duct was made on post-mortem specimens and on biopsies taken at time of surgery.

Control pressures ranged from 12 to 29 cm. of water. Minor fluctuations were noted with respirations and the cardiac impulse. The Valsalva maneuver consistently raised the pressure, confirming the observation that increased intra-abdominal pressure causes increased biliary duct pressure. None of the pressure changes reflected peristaltic waves in the common duct and no peristalsis was seen on the radiological studies.

Drug studies showed no significant pressure changes from the nitrites. Both morphine and demerol caused marked increase in duct pressure, accompanied by increased duct size and lack of flow of dye into the duodenum. Although nitrites administered after the spasm effect of opiates was initiated would slightly drop the ductal pressure and allow some escape of dye into the duodenum, a more profound and prolonged drop could be produced by the administration of probanthine or atrophine. Probanthine was the most effective.

These studies thus confirm the previously observed sphincter spasm resulting from opiates, but demonstrate a less satisfactory response from nitrites than has previously been thought possible. The anticholinergics, particularly probanthine, however, provided a striking relaxation of sphincter spasm and decrease in elevated duct pressure.

Microscopy disclosed no muscle fibers in the wall of the common duct. The authors feel that the lack of demonstration of muscle fibers on histological study of the duct and the lack of peristaltic waves on tracings of pressure responses indicate a passive role of the common duct in bile flow and an inherent incapacity for contractility.

Several clinical implications immediately are suggested by the interesting observations reported from the physiological effects observed in this study. Obviously, probanthine would appear to be a better choice for a relaxing agent when necessary in taking cholangiograms, or when employing the flush or dissolution technics for retained common duct stones. Also the rationale of the use of auticholinergics in the management of pancreatitis receives support from such observations.

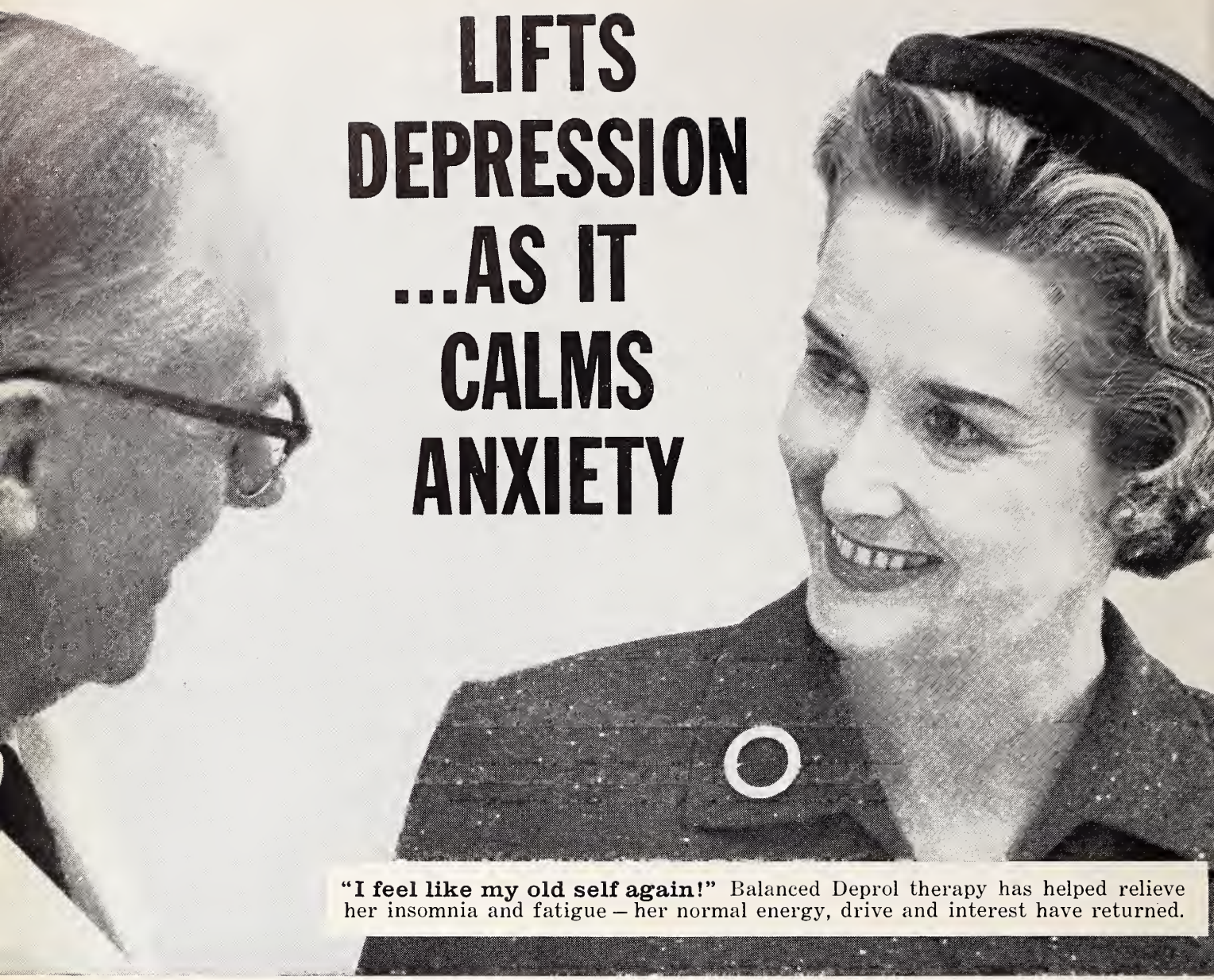
Disagreement remains from opposing observations reported on the ability of the duct to contract and the presence of muscle fibers.

Robert N. Hammerstrom, M.D.
Minneapolis, Minnesota

Myers, R.N., Haupt, G. J., Birkhead, N.C., and Deaver, J. M., "Cinefluorographic Observations of Common Bile Duct Physiology" Ann Surg. 156:442, Sept. 62.

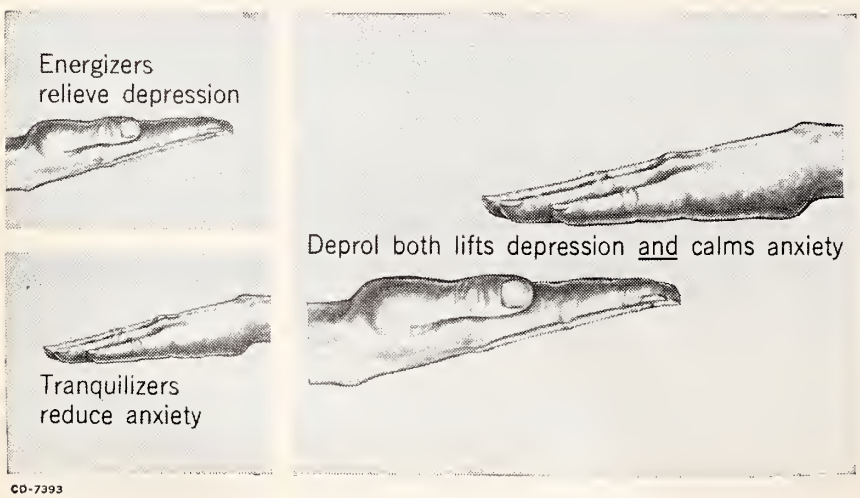
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ELECTROSHOCK IN DEPRESSIONS

Electroshock therapy (EST), an excellent tool in the treatment of patients with psychotic depressions, has been replaced in many instances of antidepressant drugs, especially when these drugs are used in combination with psychotherapy. EST and psychopharmacologic therapy should not be thought of as competitive techniques in the treatment of severely depressed patients; they supplement each other and dramatically broaden the psychiatric armamentarium. During the past few years, considerable data have been collected and used in setting up criteria to guide the physician in making decisions as to whether EST or a specific drug should be used in a given patient.

For the most part, EST is reserved for treatment of very severe depression (usually psychotic depression), such as in cases of (1) schizophrenia with depression, (2) involutional depression, (3) the depressed phase of manicdepressive psychosis, and (4) depression in patients with organic mental syndromes. In some instances, patients with very severe depression in a psychoneurotic framework may require EST, although most patients with depression in a psychoneurotic framework can be managed with either pyschotherapy alone or psychotherapy plus drug therapy. Although EST has been of significant benefit in a large percentage of severely depressed patients who have done poorly with various psychopharmacologic preparations, there are depressed patients who have had inconclusive or transient improvement with such treatment and have had satisfactory results after the use of various antidepressant drugs. EST is now the treatment of choice in depressed patients in whom there are strong suicidal drives and in severely depressed schizophrenic patients. In general, all other severely depressed patients should be treated with antidepressant drugs plus psychotherapy; mildly depressed patients can usually be managed with psychotherapy alone. If, after a fair trial with appropriately selected antidepressant drugs, the severely depressed patient does not show improvement, or becomes worse, or fails to maintain a level of improvement, EST should be given. Also, there is a group of depressed patients who do not respond positively to any type of treatment for long periods of time and who can be helped by periodic use of single electroschock treatments, i. e., by the maintenance shock therapy technique.

Disadvantages of EST are that (1) it can be expensive; (2) there are risks associated with the actual treatment, which can be minimized with the use of muscle relaxants and the help of an anesthetist; (3) the patient must be carefully watched during and for at least a week after treatment; (4) the patient is usually rendered socially and vocationally indigent for at least a month; (5) inability to remember or to retain new material sometimes persists; and (6) most patients are, or become, afraid of EST.

Courtesy of Abstracts
Farley Manning Associates
New York, New York

Lesse, S.
Geriatrics, 17:517, Aug., 1962

CAROTID ARTERITIS

Carotid arteritis, a common cause of neck pain and tenderness, should be easy to diagnose, but because it is little known and simulates painful cervical lymphadenopathy the diagnosis is rarely made.

The cause of the condition is uncertain. Hilger, who wrote about carotid pain in 1949, attributed it to autonomic imbalance. Lovshin looked on carotid arteritis as closely related to the painful vasodilating syndromes of the face and head. Both men emphasized its psychosomatic aspects: the patient's temperaments are similar to those of migraine subjects — sensitive, conscientious and perfectionist.

The cardinal symptom of carotid arteritis is neck pain, and the outstanding sign is tenderness, usually extending along the entire course of the carotid artery. Most patients complain of sore throat, but severe pharyngitis, tonsillitis or laryngitis is never present.

At the carotid bifurcation there is a tender lump which cannot be separated from the carotid artery. Sometimes the carotid bifurcation pulsates strongly, rarely suggesting an aneurysm. The patient may complain of spontaneous throbbing pain in the neck. In a few cases there is mild fever (90° to 100° F) in the initial stage.

Many of these patients have headaches of the vascular type, radiating along the front of the ear into the adjacent temporal area. Occasional cases have chest pain radiating to the left elbow.

To be considered in differential diagnosis are lymphadenitis, which can be excluded by the absence of infection in the nasopharynx, pharynx or larynx; thyroiditis, which is febrile and not associated with tenderness of the entire carotid artery; inflammation of the submaxillary salivary gland, which does not pulsate and may be associated with a purulent discharge from the submaxillary duct.

The only treatment that has proved satisfactory is with corticosteroids. Methylprednisolone, 4 mg. three to four times a day, often produces relief after a day's treatment. But not all patients with carotid arteritis, and especially not those who have had symptoms for several weeks, improve with corticosteroid therapy. These are likely to be cases of chronic anxiety state, and psychiatric counseling may prove effective.

Courtesy of World Wide Abstracts
Excerpta Medica Foundation
New York, New York

Saunders, W. H.
Laryngoscope 72/4:481

POSTMASTECTOMY LYMPHEDEMA

The article reviews 114 patients with lymphedema of the arm following radical mastectomy. The authors are convinced that infection is the most important cause. Twenty of the 114 patients had local recurrences of the cancer. Radiotherapy was thought to have no causal relationship in the majority of instances.

Treatment consisted of initial antibiotic therapy. With the disappearance of induration of the arm, pneumatic compression was applied to the arm. A custom-made arm sheath was thereafter worn.

In the twenty patients with local recurrence of cancer the program of treatment brought significant relief to eighty per cent. In the group without local recurrence ninety-three per cent showed similar improvement.

Failures were attributed to inability of patients to wear the sleeve, chronic axillary infection and recurrent cellulitis.

Courtesy of Medical Abstract Service
Berwyn, Illinois

Britton, R. C. and Nelson, P. A. JAMA 180:95, April 14, 1962.

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CONTRACEPTIVE DRUGS

The Family Planning Association has made a statement concerning oral contraceptives. This had a two-fold purpose: to emphasize once again that this form of contraception has definite medical contraindications and to make known the F. P. A.'s view that a wider research effort, backed by the resources of the Medical Research Council, is now needed. The immediate cause for anxiety is the occurrence of thromboembolic disease in patients who have had this in past pregnancies.

At present there is only circumstantial evidence to link the oral hormone preparations with thrombophlebitis and pulmonary embolism. However, at least for the time being, previous thromboembolic disease in pregnancy should be regarded as a contraindication to the administration of Conovid (Enovid; norethynodrel plus ethinyl estradiol 3-methyl ether) or Anovlar (norethindrone plus ethinyl estradiol) for contraceptive purposes. In America there seem to have been a number of instances in which women on Enovid developed thromboembolic complications, some of them fatal. These cases were reviewed recently at a private conference in the U. S. A., where it was concluded that oral contraception involved no more risk of thromboembolism than normal pregnancy. However, the risk is greater in pregnancy than at other times, and there is the question as to whether even this risk should be run just for contraception.

Four cases are known in Britain, all in women with a previous history of thromboembolic episodes in pregnancy. One woman recovered from a pelvic vein thrombosis. Two women had thrombophlebitis in the leg; one recovered, and the other died a week later from pulmonary embolism. There was a recent case of spontaneous thrombosis of the axillary artery. All of these women had been taking Enovid, and one them had recently changed to Anovlar when the complication arose.

The F. P. A.'s Handbook on Oral Contraception lists other medical contraindications, as follows: liver dysfunction, jaundice, or recent catarrhal jaundice or gallstones; menopausal irregularity; and lactation.

Courtesy of Abstracts
Farley Manning Associates
New York, New York

Annotations Section, Brit Med. J. II:315, Aug. 4, 1962

VOMITING OF PREGNANCY

In a random series of 100 pregnant women 88 experienced nausea and/or vomiting; in nearly a quarter of the affected women the onset of the symptoms preceded the first missed menstrual period. There were 39 unmarried women in this series and they were slightly less affected than were the married patients. These factors indicate that the condition is not entirely psychosomatic in origin. Clinical impressions may be misleading in assessing the value of various forms of therapy. A "double blind" trial was made in a separate series of 139 patients, testing the comparative value of (1) diet alone, (2) diet and placebo tablet, (3) diet and meclizine dihydrochloride, and (4) diet and meclizine dihydrochloride, and (4) diet and meclizine dihydrochloride with pyridoxine. There was no difference in effectiveness between (3) and (4); both were therapeutically effective to a high degree of statistical significance.

Courtesy of References and Reviews
Journal of the American Medical Association

Diggory, P. L. C., and Tomkinson, J. S., Lancet 2:370 Aug. 25 1962

BOXERS' ENCEPHALOPATHY

Pathophysiological mechanisms were studied in a series of 1,582 boxers during the course of 1,065 boxing matches. The boxers were examined neurologically before and immediately after the fights. There are 3 principal types of mechanisms which lead to injury of the central nervous system in boxing: 1) dislocation of the brain, brain stem, and cerebrospinal fluid, which usually occurs after hard punches on the temporal region; 2) vibration mechanisms, which arise after repeated hits on the head when there is good general tonus of the cervical muscles; and 3) vascular and nervous reflex mechanisms, vascular occurring when carotid, region of the heart, or mesogastrium is hit, and nervous developing after a hard blow on the jaw when the muscle tonus is good. These 3 mechanisms sometimes alternate in boxers during the matches, and the immediate clinical pictures are often variegated ranging from slight concussion to deep disorder of consciousness accompanied by a poor neurological state or massive neurological disorder. Chronic boxers' encephalopathy, a late consequence of repeated head injuries, occurred in 148 of the 1,582 boxers (over 9%). A comparison with 1,000 subjects of the same age who had never boxed showed that extrapyramidal disorders and miscellaneous signs were significantly higher in boxers; vestibulocerebellar signs compared insignificantly.

Courtesy of References and Reviews
The Journal of the American Medical Association

Serel, M. and Jaros, O., World Neurol 3:351 May 1962

BOWEL IN SHOCK

Although the occurrence of irreversible endotoxemic shock is well-attested in animals, its importance in the clinical situation has often been questioned. In this paper the experimental background is briefly reviewed, and there follows a detailed discussion of 425 cases collected from the literature, all of which showed necrotic lesions of the intestine following hypotensive episodes, without mesenteric vascular occlusion. Their incidence closely parallels that of atheroma of the superior mesenteric artery, and the concept is put forward that endotoxin shock may be an important cause of death in subjects with a compromised arterial supply to the bowel.

Courtesy of References and Reviews
Journal of the American Medical Association

Marston, A., Lancet 2:365 Aug. 25 1962

DIAPHRAGMATIC HERNIA

Obstruction as a complication of diaphragmatic hernia is not rare. Failure to recognize this complication often has fatal consequences. The diagnosis can readily be made from plain roentgenograms or barium studies. Obstructed hiatal hernia is generally associated with volvulus of the stomach. The torsion results in alteration of the pre-existing relationship between the diaphragm and the stomach, so that the distal stomach replaces the fundus in the hernial sac. Obstructed traumatic hernia manifests itself on barium examination as a funnel-shaped constriction of the gut, as it traverses the tear in the diaphragm.

Courtesy of References and Reviews
The Journal of the American Medical Association

Blatt, E. S., Schneider, H. J., Wiot, J. F., and Felson, B. Radiology 79:648 Oct. 1962

End

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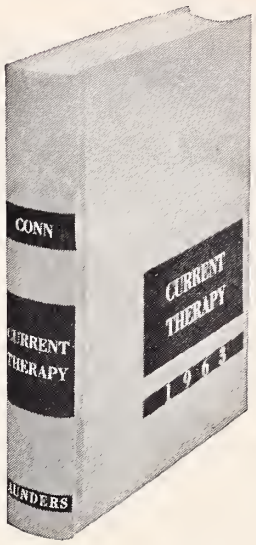
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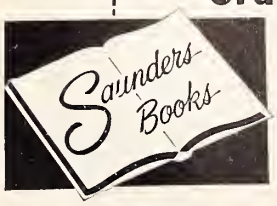
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Book Reviews

RELUCTANT SURGEON: Doubleday & Co., Inc. Garden City 439 pages—$1.45

We think of John Hunter as a surgeon anatomist, but in reviewing this book we find he had a great many talents. For anyone interested in biographical history, the RELUCTANT SURGEON is an excellent book for reference and also for the sheer joy of reading it.

Carl O. Rice, M.D.
Minneapolis, Minnesota

MALPRACTICE LAW DISSECTED FOR QUICK GRASPING — Charles Cusumano, Medicine Law Press, Inc., New York, 131 pages — $10.00.

For the physician who is intrigued with medical legal problems, for the man who may have one of his own to contend with, or for the young graduate who has received no didactic training throughout his medical course, this monograph provides valuable information pertaining to the numerous medical legal problems which may arise during the busy career of a physician.

A physician does not learn these things in school. No course is usually provided, and this monograph should therefore serve a very valuable purpose for most physicians.

Carl O. Rice, M.D.
Minneapolis, Minn.

PATHOLOGY — 4th Edition, W. A. D. Anderson, C. V. Mosby Company, 1961, St. Louis, $18.

This book is well written, well documented, and covers a wide field of general pathology.

The bibliographical references are at the end of each chapter and are adequate for additional reference material.

There is no clinical description and very few clinical references to correlate with the pathologic findings. The micro photographs are well reproduced in black and white.

This book is designed as a reference for the pathologist or for the physician who is interested in the specific details of pathologic description.

Carl O. Rice, M. D.
Minneapolis, Minn.

CONGENITAL CARDIAC DISEASE: A REVIEW OF 357 CASE STUDIES PATHOLOGICALLY. Robert S. Fontana and Jesse E. Edwards, W. B. Saunders Co., Philadelphia, 1962.

The necropsy study that is the basis for this book is probably as close an approximation to a natural history of congenital heart disease as we are likely to see. Since the study is retrospective rather than prospective, the important question of the overall incidence of and natural history of congenital heart disease can only be approximately answered.

The special value of this book is the analysis of congenital heart anomalies, not only according to type of malformation at autopsy, but also by combinations of malformations as compared to isolated malformation, and by age at time of death showing the types of malformations encountered at autopsy.

The book is well organized for reading or study. The experience of the authors is recorded and followed immediately by the reported experience of other investigators. Then both are analyzed.

The book has sufficient merit to warrant inclusion in the personal libraries of all physicians who are interested in and see many patients with congenital heart disease.

Warren J. Warwick, M.D.
Minneapolis, Minn.

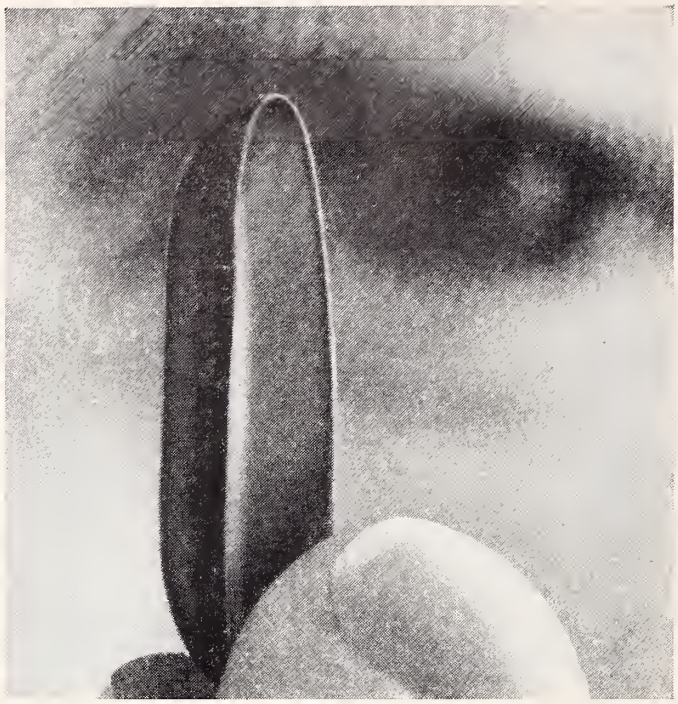
BRAY'S CLINICAL LABORATORY METHODS, J. D. Bauer, G. Toro and P. G. Ackermann, C. V. Mosby Co., St. Louis, 1962. 595 pages, Price $10.50.

Since 1936 when Bray's Methods first appeared, this classic in clinical laboratory methods has appeared in numerous printings and is now republished as the sixth edition revised by the authors listed above.

The book is principally intended to serve as a text in clinical laboratory medicine for medical students. This function it fulfills very well covering all aspects of clinical laboratory practice. Chapter I entitled, "General Rules: Laboratory examinations of value in various cases," offers some suggestions for routine laboratory studies in various diseases.

The remainder of the book is devoted to precise instructions covering all phases of hospital and office laboratory medicine.

Reuben Berman, M.D.
Minneapolis, Minn.



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Special Articles

1962 Income Tax Guide for Physicians

JOHN S. HIBBS, B.B.A., LL.B*
Minneapolis, Minnesota

The purpose of this article is to provide you with a clearer understanding of your rights and obligations under the 1962 federal and Minnesota income tax laws. More specifically, it is intended to familiarize you, the Minnesota physician, with the most important tax-saving opportunities which might be available to you, and to discuss some of the most common tax problems which arise in the conduct of a medical practice. The author points out, however, that this article should not be considered an adequate substitute for the services of professional tax counsel. To begin with, this article is written to inform, not to advise, as the tax laws are subject to uncertain application with respect to certain matters discussed herein. Moreover, the application of any law will, of course, depend upon the particular facts involved. It is assumed for purposes of this article that you file your income tax returns on the calendar-year basis and that you have been a resident of Minnesota for the full year. Unless the contrary is stated or otherwise indicated, statements herein are applicable for both federal and Minnesota income tax purposes.

As most of you are by now aware, the President signed the Self-Employed Individuals Tax Retirement Act of 1962, more widely known as H.R. 10, on October 10, 1962. H.R. 10 will not be discussed in this article, as a comprehensive article examining the history and application of the new law will be published in the March issue of MINNESOTA MEDICINE.

* Member of the Hennepin County, Minnesota State and American Bar Associations and associated with Dorsey, Owen, Marquart, Windhorst & West.

PART II.
OTHER INCOME

Generally

If in addition to professional income and salary, you received dividends, interest income, or income from pensions, annuities, rents, royalties, estates, trusts or partnerships, you must report such income on federal Schedule B. The net or taxable amount of each type of income is then reported on the appropriate line on page 2 of your Minnesota return. Furthermore, if you had capital gains or losses, they must be reported on federal Schedule D, and your net capital gain or loss must be reported on page 2 of your Minnesota return.

Dividends

Your dividend income is reported on Schedule B of your federal return, and your "taxable dividends" are reported on page 2 of Minnesota Form M-1. Because there is some confusion as to what constitutes "dividend income", it is appropriate here to distinguish certain payments by a corporation to its stockholders.

Corporate distributions.

If you own stock in a corporation and received payments out of corporate earnings and profits, these payments constitute "dividend income". In the usual case, you will receive these payments in cash, but occasionally the dividend will take the form of other property, in which case the amount of the dividend is the fair market value of such property.

If, on the other hand, you received a payment with respect to your stock which was *not* paid out of corporate earnings and profits, the payment is not taxed as a dividend, but is considered a return of your investment in the stock. If the amount of the payment, when added to similar payments which you have previously received, exceeds the cost or other basis of your stock, you have received capital gain to the extent of such excess. It frequently happens that stockholders will receive a payment which is only partly out of corporate earnings and profits. In such a case this part of the payment will constitute taxable dividends, and the remainder will be a return of your investment. Corporations normally advise their stockholders as to the amount of a distribution which represents "dividend income" and the amount which represents a return of capital.

Dividends on sale of stock.

If you sold stock, and if dividends on such stock were declared *and* paid after the sale, the dividends are taxable to the purchaser. But if you sold the stock after the declaration, but before payment, of the dividend, the dividend which you thereafter received is taxable to you unless, in the meantime, the purchaser has become the owner of record, in which case the dividend will be received by and taxable to him.

"Dividends" on savings accounts.

If you have a savings account with a savings and loan association, a mutual savings bank, or a cooperative bank, so-called "dividends" are normally paid on your deposits and withdrawable accounts. These payments do *not* constitute "dividend income", but are payments of interest and must be reported as such.

"Dividends" on insurance policies.

So-called "dividends" on unmatured insurance policies are normally in the nature of returns of premiums and, as such, are not taxable as "dividend income" unless and until they exceed the premiums or other consideration paid for the insurance.

Liquidating "dividends".

If you and other stockholders received cash or other property from a corporation in exchange for your stock, this distribution is a "liquidating dividend", whether in partial or complete liquidation of the company. Such "dividends" are *not* reported as ordinary dividend income, except in rare instances, but are considered to be proceeds from the sale or exchange of your stock and are reported instead as capital gain or loss. If you received such "liquidating dividends" on the installment basis, you usually are not required to report capital gain until your cost or other basis of the stock has been recovered; you may not report a capital loss until the final installment is received.

Stock dividends.

As a rule, stock dividends and stock rights received by stockholders with respect to their stock do not constitute "dividend income" when received. However, stock dividends and stock rights are taxable as ordinary "dividend income" (1) to the extent that the distribution is made in discharge of preference dividends for the taxable year of the corporation in which the distribution is made or for the preceding taxable year, or (2) if the distribution is, at the election of any stockholder (whether exercised before or after the declaration thereof), payable either in (a) stock of the corporation or rights to acquire such stock, or (b) property.

Taxation of dividend income.

As stated above, your "dividend income" is reported on Schedule B of your federal return, and your "taxable dividends" are reported on page 2 of Minnesota Form M-1. Your dividend income from most domestic corporations is tax-free up to $50 — or up to $100 if you and your wife each received dividends of $50 or more (as where you and your wife own stocks either jointly or separately). This exclusion must be claimed specifically on federal Schedule B. Your dividend income from domestic corporations less the $50 or $100 exclusion plus your dividend income from other corporations constitutes the amount of your "taxable dividends". In addition to the $50 or $100 exclusion, you are entitled to a dividend credit against federal taxes equal to 4% of the difference between your dividend income from domestic corporations and the $50 or $100 exclusion, or 4% of your taxable income, or your federal income tax computed on your taxable income, whichever is least. There is, however, no dividend credit against Minnesota taxes.

Interest

With few exceptions, interest received during the taxable year is fully includible in gross income and is reported on Schedule B of your federal return and the total is reported on page 2 of Minnesota Form M-1. For this purpose, interest which is credited to you during the year is considered to be received by you. As noted above, certain so-called "dividends" are considered interest for tax purposes and must be so reported. For federal income tax purposes, however, you may exclude from gross income interest received on state and municipal obligations and on United States Treasury bonds issued prior to March 1, 1941, to the extent that the principal of such bonds exceeds $5,000. As a general rule, all interest on United States obligations issued on or after March 1, 1941, is taxable under federal law. If you own United States savings

Continued

bonds and use the cash-basis method of reporting your income, then for federal income tax purposes you may either (1) defer reporting the interest until the bonds are matured or cashed, in which case the interest is included in your income for that year, or (2) elect to report each year the accrued interest, that is, the amount of increase in redemption value, attributable to such year. If you elect to report the interest each year, you must continue to do so for all savings bonds which you then or thereafter own unless you receive permission from the Service to change back to the deferral method. For Minnesota income tax purposes, you may exclude interest on all United States obligations. You must, however, report such income on page 2 of your Minnesota return and subtract the amount as a modification to federal adjusted gross income in arriving at your Minnesota gross income. You may also exclude interest on Minnesota municipal bonds under Minnesota law. Interest received on non-Minnesota municipal bonds, however, is included in gross income for Minnesota income tax purposes. Accordingly, the amount of interest on such bonds is reported on page 1 of your Minnesota return as an addition to federal adjusted gross income.

Pensions and Annuities

The tax treatment given to pension and annuity payments depends on a variety of factors, such as the amount you have actually received under such a contract, how you received the payments, and your age when payments began. Income from pensions and annuities is reported on federal Schedule B and on page 2 of your Minnesota return.

General rules.

If you receive a pension or annuity for life or over a fixed period of years, your first step is to determine how much of each annual payment is subject to tax. The same rules, incidentally, apply where you receive the proceeds of a life insurance or endowment contract, which is not being paid by reason of someone's death.

In most cases, the taxable portion of your annual pension or annuity payment is computed as follows: (1) divide your investment in the contract by the expected return; (2) multiply the resulting percentage by the payments which you received during the year (this gives you the portion of the annual payment which is not taxable); and (3) when you deduct the product determined under step (2) from the total amount of the annual payment, you have the amount subject to tax.

Your "investment in the contract" is the total of all premiums which you have paid less any exempt dividends received before the "annuity starting date". Under the tax law, this date is the first day of the period for which the first annuity payment is made, or January 1, 1954, whichever is later. If the annuity started paying off before January 1, 1954, the amounts previously recovered tax-free under the old "3% rule" of the Internal Revenue Code of 1939 must also be subtracted from the amount of your premiums to determine your investment in the contract.

The "expected return" is figured differently depending on whether the payments under the contract are for a period of years or for life. If for a period of years, the expected return is the total payments receivable over the life of the contract after the "annuity starting date". If for life, it is the annual payment multiplied by the expected return per $1 annual payment for a person of your age and sex on the "annuity starting date". This multiple is furnished by a table contained in the Treasury Regulations.

If an annuity (other than an employee annuity under a qualified plan) contract is paid off in a lump sum in 1962, the difference between the lump sum received and the cost (premiums paid plus amount previously received tax-free) is fully taxable income. However, the tax on this excess cannot be greater than the tax which would have been due if you had actually received one-third of the excess in 1960, 1961 and 1962. This adjustment is made when computing your tax.

Employees' pensions and annuities.

If you received an employee pension or annuity payment under a qualified plan, the same general rules discussed above will apply, but with some important differences. The tax treatment of amounts received under an employee pension or annuity plan will depend on whether the contract is "non-contributory" or "contributory".

If you, as a salaried physician, did not contribute directly to such a contract but were taxed on your employer's contributions, amounts which you receive under the pension or annuity will be taxed the same as under a "contributory" contract discussed below. If, on the other hand, you neither contributed to the plan nor paid taxes on your employer's contributions, the contract is "non-contributory", and the general rule is that any payment which you receive under such a contract is fully taxable. If the amounts are payable to you over a period of years, you ignore the computations discussed above and include the entire amount of each annual payment in your gross income. However, if you received the payment in a lump sum under a qualified employee benefit plan, the lump sum payment is considered a long-term capital gain, as though the payment constituted the proceeds from the sale or exchange of a capital asset held for more than 6 months.

Two questions usually arise with respect to "contributory" contracts. First, what is your investment? Amounts received which are attributable to your investment are tax-free. In order to compute this investment in most cases, you take the total of the amounts which (1) you, as the employee, actually contributed, (2) the employer paid but which you were required to include in income, and (3) the employer paid, if they would have been exempt income had they been paid directly to you. The second question is how much of the amounts received by you is subject to tax? In most cases, you will make the same computations explained above. However, there is a special rule provided in the case of amounts received as employees' annuities where part of the cost is contributed by the employer *and* the amount contributed by the employee will be returned within 3 years from the date of the first payment received under the contract. If both of these conditions are met, then all the payments received by you under the contract during the first 3 years are to be excluded from your income until you recover your cost (generally the sum of your contributions and the contributions by your employer on which you were taxed); thereafter, all amounts received by you are fully taxable.

Finally, if you received a lump sum payment under a qualified employee benefit plan, the difference between the total amount received and your investment in the contract (as explained above) would be considered a long-term capital gain.

Annuities for employees of charities.

There is a valuable tax break available to physicians who are employees of a nonprofit charitable, educational or religious organizations exempt from tax. If you are an employee of such an organization, you can exclude from gross income — within generous limits — the premiums which your employer pays for a nonforfeitable annuity for you. In general, your annual exclusion for the premium is 20% of your current compensation, multiplied by your years of service, less any excludable premiums or qualified pension contributions paid for you by the organization. Annuity arrangements of this type are becoming increasingly popular with high-income physicians working for charitable hospitals, foundations and medical schools, whether on a full-time or part-time basis.

You may agree with the organization to take a cut in salary or to forego a scheduled salary increase and

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have the amount of the cut or scheduled increase go into a nonforfeitable annuity for you. However, the agreement must cover only *future* earnings, and the organization must pay the premiums directly to the insurance company.

Rents and Royalties

If you receive rent from property owned or controlled by you, or royalties from copyrights, mineral leases and similar rights, such income is reported on Schedule B of your federal return and your net income from rents and royalties is reported on page 2 of your Minnesota return. If property other than money was received, its fair market value should be reported.

In the case of buildings, you can deduct depreciation, discussed in detail in Part I of this article. You can also deduct all ordinary and necessary expenditures on the property, such as taxes, interest, repairs, insurance, agents' commissions, maintenance and similar items. However, you cannot deduct capital investments or improvements but must add them to the basis of the property for the purpose of depreciation. For example, you can deduct the cost of minor repairs but not the cost of major improvements such as a new roof.

If you received rents or royalties with respect to real property located in another state, such income is not taxable under Minnesota law. Such income must, however, be reported on page 2 of Minnesota Form M-1 and then subtracted from federal adjusted gross income in arriving at your Minnesota gross income.

If you rent part of your house, you can deduct only that portion of your expenses, including depreciation, which relates to the rented portion. If you cannot determine these expenses exactly, you may figure them on a proportionate basis. For example, if you rent one half of your home and live in the other half, you can deduct 50% of the depreciation and other expenses.

Income from Estates and Trusts

If you are a beneficiary of an estate or trust, report your taxable portion of its income whether you receive it or not. Your share of dividends, interest, rents, royalties and capital gains and losses should be entered on the appropriate schedules of your federal return and on the appropriate lines on page 2 of Minnesota Form M-1. Your share of all other taxable income from estates and trusts should be entered on Schedule B of your federal return and on page 2 of your Minnesota return. Any depreciation on estate or trust property which is allowable to you may be subtracted from estate or trust income so that only your share of the net income will be included on your return. You can obtain information regarding these items from the fiduciary of the estate or trust.

Capital Gains and Losses

Generally.

The computation of your capital gains and losses is shown on federal Schedule D, and your net capital gain or loss is reported on page 2 of your Minnesota return. Capital gains and losses are of two classes:

(1) Short-term gains and losses resulting from the sale or exchange of capital assets held 6 months or less. All short-term gains and losses are taken into account at 100% and are combined to determine the net short-term gain or loss.

(2) Net long-term gains and losses resulting from the sale or exchange of capital assets held for more than 6 months are taxable. All long-term gains and losses are similarly taken into account at 100% and are combined to determine the net long-term gain or loss.

Both classes of net gains and losses are then considered together. There are, however, important differences to be observed in computing the taxability of the two classes of gains and losses:

(1) Net short-term gains are taxed in full as ordinary income. Thus, the excess of short-term gains over short-term losses, reduced by the amount of net long-term losses, if any, is added in full to ordinary income and is subject to regular tax rates.

(2) Net long-term gains are taxable for federal income tax purposes at a maximum rate of 25%, and under Minnesota law at an approximate maximum rate 5¼%. Thus, the excess of long-term gains over long-term losses, reduced by the amount of net short-term losses, if any, is taxable for federal income tax purposes by the application of whichever of the following alternative methods results in the smaller tax:

(a) First, add to ordinary income (plus net short-term gains, if any) 50% of the amount by which net long-term gains exceed net short-term losses, if any; then compute the tax. This is the only method permitted under Minnesota law.

(b) Second, make an alternative computation by calculating the tax on ordinary income (in which net short-term gains, if any, have been included); then add thereto 25% of the amount by which net long-term gains exceed net short-term losses, if any. Minnesota law does not provide for this alternative computation. *In practice, unless your taxable income exceeds $18,000 ($24,000 if head of household and $36,000 if a joint return is filed), this alternative computation ordinarily will not result in a smaller federal income tax liability and need not be made.*

(3) Net capital losses — the excess of capital losses over capital gains — whether short-term or long-term, are taken into account at 100% and may be applied up to $1,000 as a deduction from ordinary income for the year. If the capital loss for the year exceeds $1,000, the excess may be carried forward for the 5 next succeeding years to be applied, successively until exhausted, as a short-term capital loss. Thus, until used up within the 5 year period, the "unused" amount is first applied as a short-term loss against the next succeeding year's net short-term gains, if any; then against such year's net long-term gains, if any; then as a deduction from ordinary income in the maximum amount of $1,000 for the year.

Year-end sales of stocks and securities.

You may sell stocks or securities up to and including December 31, 1962, in order to sustain a capital loss. However, in order to establish a gain during 1962, the proceeds must be available by the last business day of the year. Thus, cash sales or sales by a taxpayer on the accrual basis may be made up to and including December 31, 1962. Based on the four business-day delivery rule of New York Stock Exchange, however, 1962 gains in listed securities on a "regular" delivery basis should be recorded no later than December 24, 1962, while "sales for next day" delivery may be effected on December 26, 27 and 28, 1962.

Limitations in establishing gains or losses.

Although securities sold to establish gains may be repurchased simultaneously, losses are not allowed for tax purposes where you have repurchased or acquired an option to purchase substantially identical securites within 30 days before or after the date of sale. Where a loss on such a "wash sale" is disallowed, the "holding period" is computed as beginning with the date you acquired the securities sold; and you compute your costs by adding the amount of the disallowed loss to the cost of the securities when they were repurchased.

Securities dealt in on a "when-issued" basis.

Gains or losses from sales, on a "when-issued" basis, of new securities in a tax-free reorganization are probably long-term gains or losses if the old securities were acquired more than 6 months before the date of making the "when-issued" contract. Similarly, they are probably short-term gains or losses if the old securities were acquired not more than 6 months before such date.

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Losses incurred on worthless securities.

Securities becoming worthless are computed as capital losses to the full amount of capital invested. In computing holding period, such securities are deemed to have been "sold" on the last day of the year in which they become worthless. You are allowed 7 years under federal law and 5 years under Minnesota law within which to file claims for refund or credit resulting from worthless securities.

Capital gain dividends.

Capital gain dividends, whether in the form of stock, cash, or both, when distributed by a regulated investment company (mutual fund), are treated as long-term capital gains, regardless of the holding period of the shares on which the capital gains dividend has been paid. The cost basis of your shares is not reduced by the amount of such capital gains distribution. If your capital gain dividends are automatically reinvested by the company, such dividends are also treated as long-term capital gains.

However, long-term capital gains dividends not distributed by companies other than regulated investment companies are treated as follows: (1) you include an income as long-term capital gains an amount equivalent to your proportionate interest in the company's undistributed capital gains for the year, as designated by the company; (2) you enter in your return, for credit or refund, an amount equal to 25% of the tax paid by the company on the undistributed capital gains included in your income; and (3) you increase the cost basis of your shares by 75% of the amount of undistributed capital gains you have included in income as long-term capital gains.

Sale of residence.

If you sold your home during 1962, or are contemplating the sale of your home, you should be familiar with certain rules governing the computation of your profit, if any, and the time and manner of reporting the sale for income tax purposes. If you made a profit on the sale of your personal residence, you are required to include this profit in your gross income in accordance with the rules discussed below as capital gain. Losses sustained on the sale of a personal residence are *not* deductible.

Where a sale of a taxpayer's principal residence (this excludes summer cottages, for example) is followed within a period of one year by the purchase of a new residence, or when the new residence is purchased within a year prior to the sale of the taxpayer's principal residence, gain will be recognized only to the extent that the "adjusted sales price" of the old residence exceeds the cost of the new one. The new residence must be used by the taxpayer as his principal residence within one year after sale of the old one, except in the case of new construction. If construction is started by the taxpayer at any time before or within one year after the sale of the old residence *and* the new property is used as the principal residence within 18 months after the sale, the nonrecognition-of-gain provisions apply to all capital expenditures within one year prior, and 18 months subsequent, to the sale. Costs properly allocable to capital expenditures outside this 30-month period do not qualify for nonrecognition.

The cost of purchasing or constructing the new residence is to be reduced by the gain not recognized on the sale of the old residence to determine the "adjusted basis" of the new residence for later sale purposes. This rule is mandatory, and taxpayers may not choose between reporting a gain and postponing it.

The "adjusted sales price" is the "amount realized" on the sale of the old residence, reduced by qualified expenses of fixing up the property to sell it. And the "amount realized" on a sale is the selling price reduced by agents' commissions and other selling expenses. The expense of fixing up a residence for sale is deducted from the "amount realized" to determine the "adjusted sales price" where the following conditions are met: (1) the expenses must not be otherwise deductible in computing taxable income (as a general rule, most costs of currently maintaining a residence, such as repairs and decorating are nondeductible "personal" expenses); (2) they must not be capital expenditures for permanent improvements or replacements which are added to the basis of the property and reduce the amount of "gain realized"; (3) the expenses must be paid within 30 days after the residence is sold; and (4) the work must have been done within 90 days before the date of sale.

The foregoing rules and terms can perhaps best be understood by illustration. Suppose you decide to sell your principal residence which you purchased in 1957 for $17,500, and that, to make it more attractive to buyers, you had the outside painted in June of 1962 at a cost of $500. In July of 1962 you sold the house for $22,000 and paid agents' commissions and other selling expenses of $1,500 and the painter's bill of $500. In September of 1962 you purchased a new residence for $18,000. The "amount realized", "gain realized", "adjusted sales price", and "gain recognized" on the sale of your old residence, and the "adjusted basis" of your new residence are computed as follows:

Selling price	$22,000	
Less: Commissions and other selling expenses	1,500	
Amount realized	$20,500	
Less: Adjusted basis of old residence	17,500	
Gain realized		$3,000
Amount realized	$20,500	
Less: Fixing-up expenses	500	
Adjusted sales price	$20,000	
Cost of purchasing new residence	18,000	
Gain recognized		$2,000
Gain realized but not recognized		1,000
Adjusted basis of new residence	$17,000	

Suppose the facts are the same except that your new home cost $20,000. Since this is equal to the "adjusted sales price" of your old residence, you will recognize none of the "gain realized" of $3,000. Accordingly, the "adjusted basis" of your new home for later sale purposes will be $17,000 ($20,000 less $3,000 gain realized but not recognized).

Any "gain recognized" on the sale of a residence in 1962 is to be reported on Schedule D of your federal return and taken into account in computing your net capital gain or loss to be reported on page 2 of your Minnesota return. If replacement is not anticipated or if the period for replacement has passed (as, for example, where you sold your old residence on January 1, 1962, and by December 31, 1962, had neither purchased and occupied a new residence nor commenced construction on a new residence), the gain is to be reported on your 1962 income tax returns. If the new residence has been acquired and occupied in 1962, the details must be reported on your 1962 returns and any "gain recognized" must also be reported. However, even where no gain is immediately recognized because the "adjusted sales price" of your old home is equal to or less than the cost of purchasing or constructing your new residence, the details of the sale and acquisition must still be reported on your return. If you intend to replace your old home or are undecided and if the time limit has not elapsed, you may, in addition to reporting the details of the sale, enter "None" as gain recognized on Schedule D and file amended returns later if there is recognizable gain. Any additional tax

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then shown would be payable with interest at the rate of 6 percent per year under federal law and 4 percent per year under Minnesota law.

It is appropriate to add one word of caution: if, within one year prior to the sale of your old residence, you have made another sale to which the nonrecognition-of-gain provisions apply, those rules will *not* apply to the *second* sale.

Refunds of Income Taxes

An example of income occasionally overlooked by taxpayers are refunds of income taxes. Refunds of state income taxes received during 1962 are includible in your federal adjusted gross income and are included on page 2 of your Minnesota return, but are subtracted as a modification in arriving at your Minnesota gross income. Refunds of federal income taxes, on the other hand, are not includible in your federal adjusted gross income, but are taxable under Minnesota law and should be reported on page 1 of your Minnesota return as an addition to your federal adjusted gross income in arriving at your Minnesota gross income.

STANDARD DEDUCTION

In Part I of this article we considered, among other things, the deductibility of professional expenses by both self-employed and salaried physicians. You will recall that in the case of the self-employed physician all of such expenses are deductible directly from gross income, while the salaried physician can deduct only certain of his professional expenses from gross income and must deduct the remainder of expenses connected with his employment, if at all, as nonbusiness deductions.

After deducting the professional expenses which you are entitled to deduct directly from gross income, you can decide whether to itemize your nonbusiness deductions, such as contributions (with limitations), interest, taxes, medical expenses (again, with limitations), and certain nonbusiness losses and expenses. If the total of these deductions is less than 10% of your adjusted gross income, it ordinarily will be to your advantage to claim the standard deduction in lieu of itemizing deductions and to obtain the benefit of nonbusiness deductions without the necessity of itemizing them on your return and of proving that you are entitled to them.

The amount of the standard deduction is the lesser of 10% of adjusted gross income or, if you are single or are married and file a joint return with your wife, $1,000. If you and your wife file separate returns, the standard deduction may not exceed $500 on each return. If you and your wife file separate returns and you use the standard deduction, your wife must also use the standard deduction. Accordingly, if you itemize your deductions, your wife must do the same.

If the standard deduction is used and you later find that you should have itemized your deductions, you may do so by filing an amended return. Conversely, if you itemized your deductions, you may file an amended return and use the standard deduction. Under federal law, you are allowed three years in which to file an amended return; Minnesota law, on the other hand, allows you two years after the tax was paid or collected, or three and one-half years from the filing of the return, whichever period is the longer. The words "Amended Return" should be plainly written at the top of such returns.

It sometimes happens that you will be able to deduct more than your actual expenses if you take the standard deduction. For example, suppose you are married, have two dependent children and file a joint federal income tax return with your wife. Suppose further that you received a salary during 1962 of $10,800, that as a salaried physician, your only professional expenses deductible from gross income are expenses of $800 incurred in operating and maintaining your automobile for business purposes (exclusive of commuting) during the year and that your nonbusiness deductions for contributions, interest, taxes, and other items total $500. Your federal adjusted gross income and taxable income for 1962 may be computed as follows:

Gross income: Salary	$10,800
Less: Automobile expenses	800
Federal adjusted gross income	$10,000
Less: Standard deduction	1,000
	$ 9,000
Less: 4 exemptions @ $600	2,400
Federal taxable income	$6,600

By taking the standard deduction, therefore, you are permitted to deduct $1,800 ($800 professional expenses plus $1,000 standard deduction), even though your actual expenses were $500 less, or only $1,300. Since you will be in the 22% tax bracket with federal taxable income of $6,600, the effect of taking the standard deduction of $1,000 in lieu of itemizing your nonbusiness deductions of $500 is a tax-saving to you of $110 (22% x $500).

As a general rule of thumb, however, if you own a home and have substantial real estate taxes and mortgage interest, it probably will be to your advantage to itemize your nonbusiness deductions.

NONBUSINESS DEDUCTIONS

Contributions

If you itemize your deductions instead of using the standard deduction, you may deduct gifts to tax-exempt religious, charitable, educational, scientific, or literary organizations, and organizations for the prevention of cruelty to children and animals. Also deductible as contributions are gifts for public purposes to a State, a Territory, a possession of the United States, or a political subdivision of any of the foregoing, or to the United States or the District of Columbia. Under certain circumstances, gifts to cemetery companies, veterans organizations and fraternal lodges may also qualify. But gifts to individuals are not deductible.

The deduction for contributions generally may not exceed 20% of your adjusted gross income for federal income tax purposes, and may not exceed 20% of your net taxable income before credit for contributions for Minnesota income tax purposes. However, under federal law the 20% limitation may be increased to 30% if the additional 10% comprises contributions made to tax-exempt hospitals, to medical research organizations connected with such hospitals, to churches or conventions or associations of churches, or to tax-exempt educational institutions maintaining a regular faculty and curriculum and having a regular student body attending resident classes.

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Deductible contributions to a qualified organization may be made in either cash or property, but not in services. The cash gift is the most common form of contribution. If a gift is made by check, a charitable contribution is deductible at the time the check is delivered, if it is thereafter honored and paid. Of course, unpaid pledges are not deductible.

And by all means, do not overlook the small contributions. These all add up. The Service ordinarily will accept estimates of very small donations, if the amounts are reasonable. You might enter: "Small donations to Boy Scouts, Easter Seals, etc.—$25."

Benefit Performances.

Numerous charitable organizations sell tickets to benefit performances in order to raise funds. It should be borne in mind that you may, subject to the above percentage limitations, deduct only the excess portion of the cost of tickets. In other words, if you paid $15 for a ticket to a benefit performance of "South Pacific" sponsored by the Cancer Society, and if the regular theater price for the ticket is $4, you may deduct $11 as a contribution.

Donations of Property.

If you give property, including stocks, securities and other property such as used clothing, furniture and books and so forth, to charity groups, the amount of the deduction is the fair market value of the property at the time of the gift, and you will generally escape recognition of previously unrealized gain on the property. Thus, taxation on unrealized gain may be avoided in most instances through gifts of appreciated property instead of cash, but there is at least a partial exception. Not infrequently, taxpayers donate appreciated property to a qualified organization upon the condition that the latter will sell the donated property, reinvest the proceeds in such items as state, municipal or United States bonds, the proceeds of which are usually tax-exempt at either the state or federal level, or both, and pay the income therefrom to the donor for life. The Internal Revenue Service has ruled that under such circumstances, although the donor will be allowed the charitable deduction and will escape tax on the income received from the organization, the sale of donated property by a qualified organization in accordance with an understanding between the organization and the donor is for tax purposes a sale by the donor. Consequently, the donor must recognize gain on the sale of the donated property in the year of sale.

Contributed Services.

Although the value of services contributed by physicians to charitable hospitals and medical research organizations is considerable, the value of such services is not deductible. You may, however, claim a contribution deduction for any unreimbursed expenses incurred in rendering such services to organizations, gifts of cash or property to which would be deductible. Accordingly, a contribution deduction is allowed for out-of-pocket transportation expenses such as taxi fares, airplane and railroad tickets, and reasonable expenditures for meals and lodging necessarily incurred while away from home in the course of performing donated services.

Contributions that exceed the above-mentioned percentage limitations cannot be deducted as business expenses. However, amounts paid to charitable organizations in payment for specific considerations or privileges, while not deductible as contributions, may be deductible as ordinary and necessary business expenses.

Political Contributions.

Although political contributions are not deductible under federal law, you are allowed to deduct political contributions not in excess of $100 for Minnesota income tax purposes.

Interest

You may deduct interest paid (or accrued if you are on the accrual method) within the taxable year on credit from your broker, on installment credit, mortgages, improvement loans, life insurance and most other loans, and on delinquent income taxes (although penalties on delinquent taxes are not deductible). If you purchased personal property under a contract providing that payment of part or all of the purchase price is to be made in installments, and in which carrying charges are separately stated, but the interest charge cannot be ascertained, then the payments made during the taxable year under the contracts are treated as though they include interest equal to 6% of the average unpaid balance under the contract during the taxable year. The "average unpaid balance" is the sum of the unpaid balance outstanding on the first day of each month beginning during the taxable year, divided by 12. In no event, however, may the interest deduction for the year exceed the carrying charges properly attributable to such year. As the rule is not overly generous, you would do well to attempt to ascertain the actual interest paid.

Interest on debt attributable to property used in your practice is deducted as a business expense on federal Schedule C and in computing your professional net income to be reported on page 2 of your Minnesota return. Whether interest is a business or a nonbusiness expense will, of course, depend upon the use made of the money borrowed and not the kind of property used to secure the loan. Thus, for example, interest on loans for business purposes is deductible as a business expense even though the loan is secured by nonbusiness assets.

Finally, you cannot deduct interest paid (or accrued if you are on the accrual method) on behalf of another person if you had no legal obligation to make the payment; on a debt incurred to purchase tax-exempt securities; on a gambling debt or otherwise invalid debt; on a life insurance loan, if interest is added to the principal of the loan; or on a debt incurred to purchase a single premium life insurance or endowment policy, including such policies where "substantially all" the premiums are paid in less than four years from the date of purchase.

Taxes

Income taxes.

Minnesota income taxes paid and withheld in 1962 are allowed as a deduction on your federal return if you itemize your nonbusiness deductions, but are not deductible on your Minnesota return. Federal income taxes paid and withheld in 1962 are deductible from Minnesota gross income in arriving at Minnesota adjusted gross income on page 1 of the Minnesota return. You can claim a deduction for such taxes whether you itemize your nonbusiness deductions or take the standard deduction on the Minnesota return.

Occasionally, taxpayers receive income which is included in their federal adjusted gross income, but is not taxable under Minnesota law. In such a case, it is inappropriate to claim a deduction, in arriving at Minnesota adjusted gross income, for the entire amount of federal income taxes paid and withheld during the year. Rather, only a portion of such federal income taxes is properly deductible. The Minnesota taxing officials appear to have approved the use of the following formula in computing the deductible portion of federal income taxes under such circumstances:

(1)	Income not taxable by Minnesota but taxable under federal law	$
(2)	Federal adjusted gross income	
(3)	Ratio of (1) to (2)	%
(4)	Federal income tax liability for the year (exclusive of self-employment tax)	$
(5)	Federal income taxes paid and withheld during the year (exclusive of self-employment tax)	$
(6)	Portion nondeductible (3) x (4)	
(7)	Portion deductible (5) — (6)	$

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Other taxes.

Minnesota real estate and gasoline taxes as well as the cost of automobile licenses are deductible on both the federal and the Minnesota returns, but federal club dues taxes, admissions taxes, telephone and telegraph taxes, and the employer's one-half of social security taxes with respect to the wages of domestic employees are allowed as a deduction only on the Minnesota return. However, as was pointed out in Part I of this article, certain of the foregoing federal taxes are allowed as a deduction on the federal return if incurred and paid by you in connection with your professional practice.

In 1961, the Minnesota Legislature imposed a cigarette and tobacco products excise tax directly upon the consumer. The tax imposed on cigarettes, for example, is 7¢ per package and is deductible only for federal income tax purposes. In computing your deduction for the cigarette tax, multiply the number of packages of cigarettes which you purchased per day time 7¢ and multiply the product by 365. Thus, if you purchased two packages of cigarettes per day during 1962, your deduction for federal income tax purposes for the Minnesota excise tax on cigarettes would be $51.00 (7¢ x 2 x 365).

If you sold your home in 1962, you are, under federal law only, generally allowed a deduction for 1962 real estate taxes properly attributable to the part of the year ending the day before the sale, whether or not such taxes were paid. In addition, and again only under federal law, the taxes thus allowed as a deduction must be added to the selling price of the home for purposes of determining gain or loss.

Medical Expenses

Generally.

If you itemize your deductions instead of using the standard deduction, your deductions for federal and Minnesota income tax purposes may include expenses actually paid during the year for your medical care and that of your wife and dependents, not compensated by insurance or otherwise. Under federal law, therefore, amounts paid on behalf of a claimed dependent, *or* a person who could be claimed as a dependent except for the fact that he had income of $600 or more, may be included.

Generally, the amounts paid for the diagnosis, cure mitigation, treatment or prevention of disease or of a physical or mental defect, are medical expenses under federal and Minnesota law. Such expenses include payments made for medicines and drugs and for diagnostic, surgical, hospital, nursing, laboratory, dental, X-ray, obstetrical, and therapy treatments, and other similar services. Also considered medical expenses are the cost and maintenance of artificial teeth, eyes and limbs, eye glasses, surgical and orthopedic appliances and seeing-eye dogs. Although medical expenses ordinarily include amounts paid for psychiatric care, the amounts paid for personal analysis of medical students (which in some instances is a required part of their training) do not qualify.

Medical expenses probably include the amounts paid for permanent structural additions to a house, such as an air conditioner, an elevator or a first floor bedroom and bath, if such expenditures are made for the principal purpose of mitigating or treating a disease. If the structural additions increase the value of your home, a deduction may be claimed only to the extent that the expenditure exceeds such increase in value. For example, assume that you installed an air conditioning system in your home at a cost of $1,000 for the principal purpose of alleviating the asthmatic condition of one of your dependents and that the installation of this system was necessary to the treatment of your dependent's condition. If the value of your home was thus increased by $750, the remaining $250 would qualify as a medical expense.

Special schools for handicapped children.

The cost of sending a child with some physical or mental disability to a special school having resources for alleviating the child's condition or for training a child with such a disability to live a more normal life is deductible as a medical expense if the alleviation of the disability or the training is the principal purpose for his going there. And this is true even though the child participates in a regular school curriculum at such a school in addition to receiving specialized treatment or training. If, however, the taxpayer is unable to demonstrate that the principal purpose for sending the child to such a school is the special treatment or training available there, he either will be required to allocate only a portion of the cost as a medical expense or will be denied any deduction at all, depending upon the particular facts.

Transportation, food and lodging.

Under federal law, but not for Minnesota income tax purposes, *the cost of transportation primarily for and essential to the rendition of medical care is deductible as a medical expense.* Thus, for example, the transportation expenses incurred by a taxpayer crippled by arthritis in going to Arizona on the advice of his doctor, or by a parent in accompanying a child to obtain medical care, or taxi fares, are deductible under federal law. To be deducted, however, transportation expenses must be essential to medical care and not merely incidentally related to it.

Amounts paid for food and lodging away from home are not deductible as medical expenses under federal law unless they are provided as a necessary part of institutional medical treatment. The Supreme Court recently resolved a conflict between lower federal courts and disallowed personal and living expenses (other than transportation) when away from home for medical reasons. *However, when a taxpayer's food or travel costs are higher than they normally would be due to medical necessity, it now appears this excess is deductible as a medical expense under federal law.* That was the result in the first medical deduction case on this point in the Tax Court, since the Supreme Court's decision. The taxpayer suffered from high blood pressure, an old stroke, prostate trouble, bronchitis, TB, pneumonia and partial paralysis. His doctor prescribed a stay in a warmer climate during the winter months, and, because of taxpayer's heart condition, he was ordered on a salt-free diet. His wife had to go with him because he could not care for himself after his paralytic stroke. In addition to the transportation costs for himself, the Tax Court allowed the following deductions as medical expenses: (1) his wife's transportation costs; (2) hotel expenses for 1953 (allowable under the prior law), but not for 1954 and 1955 (not allowable under the recent Supreme Court decision); (3) the additional cost imposed by restaurants over and above his purely nutritional needs for having his meals prepared without salt; and (4) taxicab fares to restaurants that served him salt-free food.

For Minnesota income tax purposes, although the cost of transportation, as pointed out above, is not deductible as a medical expense, expenses for food and lodging incurred by taxpayers who take trips on the advice of their doctors as a necessary part of medical treatment do qualify as deductible medical expenses. Moreover, if it is necessary for another person (such as a nurse or the spouse of the taxpayer) to accompany

Continued

the taxpayer on such a trip, the expenses incurred by the taxpayer with respect to food and lodging for such other person are also deductible as medical expenses under Minnesota law.

Hospitalization Insurance.

The cost of membership in either the Blue Cross or the Blue Shield plans, as well as commercial hospitalization insurance premiums, may be included in computing medical expenses under federal and Minnesota income tax laws. Commercial medical insurance premiums are deductible as medical expenses for federal income tax purposes, but Minnesota law does not allow a deduction for such expenses unless you have received benefits from the policy during the taxable year, and then not in excess of the benefits received or premiums paid, whichever is less. The cost of life insurance or disability insurance which insures you against loss of earnings is not a medical expense. In a recent case, a taxpayer was held entitled to claim as a medical expense under federal law the total premium paid for health and accident insurance. However, under Minnesota law, premiums paid for accident and health insurance which does not provide reimbursement to you for medical expenses are not deductible. Accordingly, if you have, for example, an accident and health policy which combines any of the aforementioned types of insurance, the Minnesota tax authorities at least require that you prorate the premium in accordance with the above rules. As indicated above, medical costs recovered during the taxable year through insurance or otherwise reduce the medical deduction.

Limitations on Deduction of Medical Expenses.

The deduction for medical expenses on your federal return is allowable only to the extent that such expenses (exclusive of amounts paid for medicines and drugs) exceed 3% of your adjusted gross income. If, however, either you or your wife is 65 or over, the amount deductible under federal law for medical expenses is not subject to the 3% limitation. Moreover, amounts spent by you for medical expenses of your or your wife's dependent parent will not be subject to the 3% rule if such parent is 65 or over. In computing the medical expense deduction on your federal return, the amounts paid for medicines and drugs are deductible as medical expenses only to the extent that they exceed 1% of your adjusted gross income, regardless of the age of you or your wife or your dependents.

The deduction for medical expenses, including medicines and drugs, claimed on your federal return cannot exceed $5,000 multiplied by the number of exemptions you claim, exclusive of special exemptions for age and blindness. The medical deduction may in no event exceed $10,000 if you are single and not a surviving spouse or the head of a household or if you are married, but file a separate return, or $20,000 if you file a joint return or are a surviving spouse or the head of a household. The foregoing dollar limitation, however, does not apply if either you or your wife is 65 or over and disabled. In such a case, the maximum deduction for medical expenses under federal law is $20,000 if you are 65 and disabled, or if your wife is 65 and disabled and does not file a separate return, or $40,000 if you and your wife are 65 and disabled and file a joint return. *For purposes of this exception, you are considered to be "disabled" if you are unable to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment which can be expected to result in death or to be of long-continued and indefinite duration.* And "substantial gainful activity" refers to the activity or a comparable activity, in which you customarily engaged prior to the arising of your disability, or prior to retirement if you were retired at the time your disability arose. The Internal Revenue Service considers housekeeping to constitute a substantial gainful activity of a person whose primary activity is housekeeping.

The federal Treasury Regulations list examples of impairments which the Service ordinarily will consider as preventing substantial gainful activity. It, however, should be pointed out that the Regulations declare that none of the illustrations of impairments will, in and of itself, always permit a finding that the person concerned is unable to engage in substantial gainful activity. Examples of such impairments listed in the Regulations are: Loss of use of two limbs; certain progressive diseases which have resulted in the physical loss or atrophy of a limb, such as diabetes, multiple sclerosis or Buerger's disease; diseases of the heart, lungs or blood vessels which have resulted in major loss in heart or lung reserves as evidenced by X-ray, electrocardiogram, or other objective findings, so that despite medical treatment breathlessness, pain or fatigue is produced on slight exertion, such as walking several blocks, using public transportation or doing small chores; cancer which is inoperable and progressive; damage to the brain or brain abnormality which has resulted in severe loss of judgment, intellect, orientation or memory; mental diseases (e.g., psychosis or severe psychoneurosis) requiring continued institutionalization or constant supervision of the person concerned; permanent and total loss of speech; total deafness uncorrectable by a hearing aid; and severe loss or diminution of vision. *Proof of disability should always be submitted on the return where such disability is claimed.*

For Minnesota income tax purposes, on the other hand, there are neither percentage nor dollar limitations. *Amounts paid for medical and dental care and drugs for yourself and your dependents are deductible in full.*

Other Deductions

You may deduct legal or accounting fees attributable to tax advice and to the preparation of income tax returns. In addition, a deduction is allowed for casualty losses, thefts, and similar losses which are uncompensated by insurance or otherwise. Such expenditures as safety deposit box rental, investors' statistical services, investment periodicals (such as the Wall Street Journal), custodian fees, fees paid to investment advisers, and legal or accounting fees for investment record-keeping are allowable deductions as expenses paid or incurred for the production or collection of income, or for the management, conservation or maintenance of property held for the production of income. In addition, if you paid or accrued amounts for *deductible* business or professional expenses which, because you are a salaried physician, cannot be deducted directly from gross income, such expenses should be itemized as other deductions.

Nonbusiness bad debts are those which are not (1) created or acquired in connection with a trade or business of the taxpayer, (2) incurred in the taxpayer's business, or (3) evidenced by a stock, bond or other security which is a capital asset. If a nonbusiness bad debt becomes *entirely* worthless within the taxable year, the loss is treated as a short-term capital loss. As such, it is deductible first from short-term capital gains, if any; then from net long-term capital gains, if any; then from ordinary income in the maximum amount of $1,000. No deduction is allowed for nonbusiness bad debts which become *partially* worthless during the taxable year.

If a dependent of yours attended an elementary or secondary school during the taxable year, you may, for Minnesota income tax purposes only, deduct amounts paid to others for such dependent's tuition and school transportation costs up to a maximum of $200 for each dependent. You must submit a schedule showing the expenses for each dependent and to whom payments were made.

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DEPENDENT EXEMPTIONS AND CREDITS

Most of the exemptions and credits allowed taxpayers are set forth and sufficiently explained on the federal and Minnesota income tax returns. Exemptions and credits pertaining to dependents, however, are somewhat more complicated and less obvious. For federal income tax purposes, you may claim an exemption of $600 for each person who is dependent upon you, if the following tests are met:

Gross Income.

Generally, a person may not be claimed as a dependent if he received gross income of $600 or more for the year. The gross income test is inapplicable, however, in the case of a child, stepchild, or legally adopted child who is under 19 or who, regardless of age, is a full-time student during each of five months during the year at an educational institution which maintains a regular faculty and normally has a regularly organized body of students in attendance.

Support.

You must have contributed more than one-half of the support of the dependent, except in a case where there is a "multiple support agreement." Support includes amounts expended for board, lodging, clothing, cost of education, medical and dental care, cost of entertainment, and cost of travel and transportation. It does not include amounts spent to purchase so-called "capital items" other than clothing.

Scholarships.

Amounts received by a child, stepchild, or legally adopted child who is a student, as scholarships for study in an educational institution should not be taken into account in determining the total cost of his support. On the other hand, amounts received by veterans for tuition payments and allowances while attending school and appointments to Service Academies are not considered scholarships and should, therefore, be included in the total cost of the dependent's support.

Multiple Support Agreement.

An exception to the support test is applicable if no one person contributed more than half the support of an individual, but over half of the support of the individual is contributed by two or more persons each of whom, but for the support test, would be entitled to claim the individual as a dependent. In this event, *one* of the persons who furnished over 10% of the support may claim an exemption for the dependent individual. Each person contributing to the support, except the person claiming the exemption, must file a written statement on Form 2120 that he will not claim the individual as a dependent for that year. The statements should be filed with the return of the person claiming the exemption.

Member of Household.

It is not necessary for allowance of the exemption that the claimed dependent be related to you if he is a member of your household in the usual sense and lives with you for the entire year. It should be observed that temporary absences from your home by reason of vacations, school, or sickness will not disqualify him as a dependent if the other tests are met.

It is not necessary that a claimed dependent live with you or be a member of your household if such person is related to you in any of the following ways: your father or mother, or an ancestor of either; your stepfather or stepmother; your son or daughter, or a descendant of either; your stepson or stepdaughter; your brother, sister, stepbrother or stepsister; a son or daughter of your brother or sister; or your son-in-law, daughter-in-law, father-in-law, mother-in-law, brother-in-law, or sister-in-law. An exemption for a cousin ordinarily will not be allowed unless the cousin lives with you as a member of your household. But a cousin may be claimed as a dependent if for the taxable year he receives institutional care as the result of physical or mental disability, and if he meets all other tests and was a member of your household before receiving the institutional care.

Citizenship or Residence.

With minor exceptions, the dependent must be a citizen or resident of the United States, Canada, Mexico, the Canal Zone, or of the Republic of Panama.

Joint Return.

The claimed dependent may not file a joint return with another person, nor may a person be claimed as a dependent if that person is claimed as a dependent on, for example, her husband's return. The dependent may, however, claim the $600 personal exemption on his own return, even though he has been claimed as a dependent on your return.

For Minesota income tax purposes, you are entitled to a "credit" of $15.00 for each claimed dependent. Dependents need not be related to nor live with you. The Minnesota credit for dependents is based solely upon actual financial dependency, not upon legal dependency, age or earnings of the claimed dependent. Accordingly, Minnesota law does not provide a "multiple support" exception. Unlike the federal income tax law, the Minnesota dependent credit is allowed in full only if chief support is furnished to the dependent for a full taxable year of twelve months, and if the dependent was in existence for the same period. Thus, for example, if a child of yours was born on July 1, 1962, you may claim the full $600 exemption for the child on your federal income tax return, but may claim only one-half of the Minnesota dependent credit, or $7.50 on your Minnesota return.

PARTNERSHIPS

Partnership Income

Partners are liable for federal and Minnesota income taxes as individuals, and each should report his share of partnership income or loss together with other items of income or loss in determining his taxable income. The partnership itself is a non-taxable entity, although it is required to file information returns and to report its income on federal Form 1065 and on Minnesota Form M-3.

The partnership entity has the option in its first taxable year to account for income on a cash basis or on an accrual basis. Medical partnerships, as individual practitioners, customarily use the cash basis since there is no advantage in paying income tax on professional fees until actually received. Moreover, a cash-basis taxpayer may control his taxable income to a limited extent, by paying bills in the current year, or by postponing the payment of such bills until the following year. The partnership entity computes the depreciation deduction on depreciable partnership property in arriving at partnership income. Consequently, individual partners do not separately compute depreciation on their respective shares of partnership property.

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Partner's Distributive Share

Partners are liable individually for income taxes on their shares of partnership income in accordance with the partnership agreement, which may provide for different distributive shares of any item of gain, loss, deduction, or credit. However, any such provision in an agreement will be disregarded if the principal purpose is income tax avoidance or evasion. The distribution ratio for taxable income or loss, exclusive of the items required to be treated separately, would then be applied.

Medical partnership agreements frequently provide only for the division of professional fees, after payment of expenses, without reference to other items. Where no provision is made for the division of particular items, each partner's distributive share of such items will be determined in accordance with his distributive share of ordinary income or loss.

Partnership Tax Year

A new partnership may not adopt, nor may an existing partnership change to, a tax year other than that of its principal partners. A "principal partner" for this purpose is one having an interest of 5% or more in the partnership profits or capital. By application to the Commissioner, however, a partnership may adopt or change to a tax year other than that of all of its principal partners if a satisfactory business purpose for the adoption of the change can be shown.

Nonrecognition of Gain or Loss

When a partner contributes property to a partnership — whether being formed or already in operation — neither he nor the partnership recognizes taxable gain or loss. But if a partner sells property to his partnership, he will recognize gain or loss. Thus, each partner and the partnership should choose the procedure which gives the greater tax advantage, by arranging the transfer as either a sale or a contribution to capital — whichever is desired.

Basis

The basis of property contributed by a partner to a partnership is its cost to him. The adjusted basis of property is cost plus or minus certain adjustments, such as improvements or additions to the property or costs chargeable to the capital account during the time the property was held, which are added, or items that amount to a recovery of a part of the cost, such as depreciation, which are deducted.

Basis of Partner's Interest

The basis of a partner's interest in a partnership acquired in exchange for a contribution of property or money, is the amount of money contributed plus the "adjusted basis" to the contributing partner of any property contributed.

Basis of Property to Partnership

The basis to the partnership of property contributed by a partner is the "adjusted basis" of such property to the contributing partner, at the time of the contribution. In other words, property contributed to a partnership has the same basis in the hands of the partnership for purposes of determining gain, loss, depreciation, and so forth, as it had in the hands of the contributor.

Partner's Contributions

Absent a contrary provision in the partnership agreement, items of income, gain, loss, deduction, or credit with respect to property contributed by a partner are allocated among the partners in the same manner as similar items arising with respect to property purchased by the partnership. Accordingly, an allocation will be made according to each partner's normal ratio of dividing profits and losses.

However, a provision may be made in the partnership agreement for sharing depreciation or gain or loss on contributed property among the partners so as to take account of the variation between the basis of the property to the partnership and its market value at the time of the contribution. Although such a scheme may result in possible loss (or gain) to the partners who did not contribute the specific property sold, there generally will be a corresponding gain (or loss) to such partners on sale or disposition of their interest in the partnership.

Payment of Salaries to Partners

Salaries paid to a partner are ordinarily viewed as payments made to an outsider, and the partnership is allowed a deduction for such salaries paid. Salaries are taxable to the recipient partners even though the salaries may result in a partnership loss which must be shared by the salaried partners who cannot use the loss to reduce their basis in partnership assets because of lack of capital.

A salary received by a partner contingent on the existence of partnership profits is fully taxable, but the payment is viewed simply as a distribution of profits and is not deductible by the partnership.

Sale of Partner's Interest

A partner who sells his partnership interest at a profit is generally taxed at capital gain rates rather than the higher taxes applicable to ordinary income. The sale is treated in the same general manner as the sale by a stockholder of shares of stock in a corporation. However, he will have ordinary income and not capital gain to the extent that the sale proceeds for his interest are attributable to the partnership's unrealized receivables.

Sale of Partner's Interest Can Increase Basis of Partnership Assets

When a new partner buys the interest of a former partner, the cost (basis) to the partnership of its assets is normally not affected. But the partnership can elect to increase (or decrease) the basis of its assets when the interest is sold, except that this change in basis will apply only to the new partner, and not to the remaining ones. The basis of the partnership's assets may be increased by the excess of what the new partner paid for his interest over his share of the existing basis of the partnership assets over the amount he paid for his interest.

Payments to Retiring or Deceased Partner

When a partner retires or dies and payments are made by the partnership to the partner or his heirs, the amounts so paid may represent several items. They may, in part, represent the withdrawing partner's capital interest in the partnership. They may also include his pro rata interest in unrealized receivables or uncollected fees of the partnership.

Payments in excess of the value of the partner's capital interest in the partnership are ordinary income and not a capital gain to a retiring partner or to a deceased partner's heirs and are deductible from the partnership income of the remaining partners. In computing the value of a partner's capital interest, however, his share of the following items are excluded: (1) unrealized receivables or uncollected fees not reported as income, and (2) goodwill of the partnership, except to the extent that the partnership agreement provides for a payment with respect to goodwill.

Payments for a capital interest provide the remaining partners with no deductions, but make it possible for the recipient to receive the preferential tax treatment afforded to capital gains. On the other hand, payments representing participation in partnership income may be deducted by the remaining partners, but the recipient is taxable on such payments as ordinary income.

A payment with respect to goodwill is not deductible to the partnership. Accordingly, the acquisition of the tax benefits of capital gain to the retiring partner can be weighed against the relinquishment of the deduction to the remaining partners, with an appropriate adjustment made therefore in the amount paid to the retiring partner.

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Death of Partner Can Increase Basis of Partnership Assets

The basis of partnership assets is generally not affected by the death of a partner. But the partnership can elect to increase (or decrease) the basis of its assets when a partner dies, except that this basis change applies only to the new partner — the deceased partner's estate or beneficiary. The change of basis has no application to surviving partners.

The basis of the partnership's assets can be increased by the excess of the market value at the date of death of the deceased partner over his estate's share of the basis of the partnership's assets, or decreased by the excess of his estate's share of the basis of the partnership's assets over the market value of the deceased partner's interest at death. Consequently, as the estate or beneficiary of the deceased partner succeeds to his share valued as of the date of death, the election can increase the partnership's basis for its assets free of tax with respect to the estate or beneficiary who steps in as the new partner.

RETURNS AND ESTIMATES

Returns

Both your federal and your Minnesota income tax returns must be filed on or before Monday, April 15, 1963. It is assumed that you are familiar with the tax advantage of filing a joint federal return with your wife. You, however, may not be aware of the fact that Minnesota law, unlike federal law, does not provide for income-splitting between husband and wife; that is, married taxpayers receive no tax advantage by filing a joint Minnesota return. In fact, where a husband and wife each have net income taxable in Minnesota, it will normally be to their distinct advantage to file *separate* Minnesota returns. This is because in the usual case where a husband and wife both receive income, the husband is in a substantially higher tax bracket than is his wife. Consequently, the effect of filing a joint return under such circumstances is that the wife's income is taxed at a much higher rate than it would be if she filed a separate return, and the combined income may cause the husband's income to be taxed in a higher bracket than it otherwise would be.

You, therefore, should consider filing separate Minnesota returns if, for example, (1) you or your wife received dividends on stock owned jointly or separately, (2) you or your wife realized capital gains on the sale of stock owned jointly or separately, (3) you or your wife received or had credited to you interest on joint or separate savings accounts, or (4) you or your wife received income with respect to property owned jointly or separately. In the instances referred to where your wife received separate income, she should list this income on a separate Minnesota return. Where you both receive income with respect to jointly-owned property and the income is deposited in a joint bank account, or is otherwise available for your and your wife's use, or is used to purchase other property owned jointly, your wife may report 50% of such income on her separate return, and the remainder will be reported on your return. If it is advantageous to do so, your wife may also claim those deductions which she is entitled to claim individually, or 50% of the amounts representing deductible sums paid from joint funds, or both. In the situation where your wife has net capital losses for the year in excess of her other income, it would be to your advantage to file a joint Minnesota return, thereby offsetting a portion of your income with such losses.

Declarations of Estimated Income Taxes

Under federal law, you are required to file, on or before April 15, 1963, a declaration of estimated income tax (Form 1040-ES) if your estimated 1963 federal income tax can reasonably be expected to exceed federal income taxes withheld during 1963 by $40 or more, and if (a) your 1963 federal gross income can reasonably be expected to include more than $200 from sources other than wages; or (b) your 1963 federal gross income can reasonably be expected to exceed (1) $5,000 if you are single but not the head of a household or a surviving spouse, or if you are married, file a joint return with your wife, and your combined gross income can reasonably be expected to exceed $10,000, or (2) $10,000 if you are the head of a household or a surviving spouse.

Under Minnesota law, you are required to file, on or before April 15, 1963, on form M-14, a declaration of your estimated 1963 Minnesota income tax if it can reasonably be expected to exceed by $20 or more the sum of your allowable credits and 1963 Minnesota income taxes withheld, and if (a) your 1963 Minnesota gross income can reasonably be expected to include more than $200 from sources other than wages upon which Minnesota income taxes will be withheld; and (b) your 1963 Minnesota gross income can reasonably be expected to exceed (1) $750 if you are single, or (2) $1,500 if you are married, file a joint return with your wife, and the gross income is yours or both yours and your wife's.

WATCH FOR!

March Issue — H.R. 10 — What It Means To You (A legal analysis of what this new regulation can mean to you, and how it compares with the Minnesota Corporations Act.)

Physician's Guide to Wills, Trusts, and Estates

Almost every physician intends to make a will before he dies. Yet, it is a common occurrence for physicians to die without a will. Perhaps this neglect is due to inertia or an aversion to dealing with matters which contemplate one's own demise. Ironically, this procrastination is shared with members of the legal profession. Lawyers who have spent a lifetime drawing wills for their clients often die without having drawn their own will.

This guide can help you to minimize the taxes that may be due at your death and to understand the important aspects of a will so that you can plan more wisely for your family's future security.

BERNARD D. HIRSH,
Chicago

PART V

Trust Plans

A trust involves the transfer of cash, securities, or other property by the creator of the trust to a trustee who thereafter holds and manages this property for the benefit of a designated person or persons. What the trustee does with the property, when and to whom he pays the income, or finally distributes the trust property are set forth in the trust instrument.

Use of Trusts

Suitable arrangements can be made in a trust for the accumulation or payment of income; for distributions to children when they reach specified ages; for the care of aged parents and the treatment of mentally or physically impaired children or relatives; and for distribution to contingent beneficiaries in the event that the original beneficiaries die.

Trusts can be drawn in a way which provides for flexibility in meeting new situations. Your trustee can be given power to act in case of any emergency affecting your beneficiaries. If, for example, the income from the trust is insufficient to suitably support or educate any of the beneficiaries, or to meet the needs of serious illness or mental or physical disability, your trustee can be authorized to use such portion of the principal as may be necessary.

A trust may be created by a contract between the grantor, who provides the trust property, and the trustee who receives it; or it may be created under the terms of a will, to take effect upon the death of the maker of the will. A trust created by a contract is often referred to as a "living" trust and a trust under a will a "testamentary" trust.

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TRUST AGREEMENT

JOHN DOCTOR, of Chicago, Illinois, has this day transferred and delivered to RUSSELL ROE, as trustee, for and on behalf of JOHN DOCTOR, JR., the beneficiary, fifty shares of common stock in General Motors Corporation; such property and all substitutions therefor and additions thereto, to be held upon the following trusts:

1. Until termination, the income and principal may be paid to the beneficiary, notwithstanding minority, or expended for the benefit of the beneficiary, at such times and in such amounts as the trustee deems advisable; any excess income shall be added to the principal.

2. When the beneficiary attains the age of twenty-one years, the trust shall terminate and the principal and all undistributed income shall be distributed to the beneficiary, free of trust.

3. If the beneficiary dies before attaining the age of twenty-one years, then upon his death the principal and all undistributed income shall be distributed as the beneficiary appoints by Will, and in default of appointment, to the estate of the beneficiary.

4. The trustee shall have the following powers and discretions, and any others that may be granted by law: (a) To retain any property received by the trustee, regardless of lack of diversification, risk, or non-productivity; (b) To sell, invest and reinvest the trust estate in any property, including common stocks, common trust funds and investment trusts; (c) To deposit the trust estate or any part thereof in a savings or other account in any bank or savings and loan association.

5. The trustee shall be entitled to reimbursement for expenses but shall receive no compensation.

6. Any trustee may resign by written notice to the beneficiary, if of legal age, otherwise to his parents, surviving parent or legal representative. If the initial trustee dies, resigns or becomes unable to act, then GEORGE DOCTOR, or if he fails to become or ceases to act, then HENRY DOCTOR, shall be trustee without the execution of further documents. A successor trustee may accept the account rendered and the property delivered by a predecessor trustee without incurring liability for so doing.

7. Additions to this trust may be made by JOHN DOCTOR or any other person.

8. The benefits of this trust are in addition to and not in substitution for any legal obligation of a donor to the beneficiary.

9. This trust is irrevocable and unamendable.

Dated: May 31, 1962

John Doctor
.....(SEAL)
Donor

Russell Roe
.....(SEAL)
Trustee

Testamentary Trusts

There are two choices open to you in providing for the distribution of your property under your will: outright distribution to your beneficiaries, or creation of a trust for their benefit.

Property that is distributed outright to your family at your death is theirs to do with as they please. They may invest it wisely or poorly, give it away, or spend it prudently or imprudently. When a trust is created under your will, it enables your trustee to manage and distribute the trusteed property, and its income, as directed by you in your will. Through a trust, you can provide for children, your wife, or other beneficiaries who lack business experience.

If you leave property outright to minor children, your executor cannot legally make direct payment to them and a guardian for their property will have to be appointed during their minority. The need for such a guardian is dispensed with if property is left in trust for children during their minority or for a longer period.

A testamentary trust operates in this way. In your will, you provide that after payment of your debts and specific bequests the remainder of your property shall be distributed by your executor to a trustee. Subject to the provisions of your will, the trustee will hold this property in trust for your family or other beneficiaries. The trust thus established under your will may direct that income be paid to your beneficiaries or applied for their education or support during their lives or for a period of years, with suitable provisions for eventual distribution of the principal to them or their descendants. Depending upon the integrity and ability of your trustee, your beneficiaries can enjoy a freedom of responsibility for financial management of

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the trust property and a substantial degree of security.

At the death of a beneficiary whose interest in the trust is limited to its income and who has no power to direct the disposition of the trust property, it will not again be subject to estate taxes or administration costs. It will pass intact under your testamentary trust to those who are to receive the trust property outright at the expiration of the trust. On the other hand, if the same property had passed by will or inheritance, it would have been subject again to estate tax and costs of probate.

Use of Testamentary Trusts

A happily married man may sometimes overlook in his estate planning the possibility that when he is gone his wife may remarry. The property you leave outright to your wife, may, in turn, become the property of her second husband if she predeceases him. She may do this by leaving him all or part of her estate by will or even disinherit your children. A surviving husband does not have to accept such provisions as the deceased wife may have made by will. In the absence of a valid ante or postnuptial agreement, he can renounce the provisions of her will and elect, instead, to take the one-third or one-half of her estate which the state law may provide.

The possibility of your wife's remarriage can be adequately provided for by a trust established under your will. Instead of leaving her share of your estate to her outright, you may leave it in trust for her. A provision often recommended is that in case of remarriage her share shall be reduced but not below what is necessary to assure her an independent income for life. If the second marriage proves to be a mistake, she will nevertheless have financial security. Upon her death, the trust can continue for the benefit of your children or it can be terminated and distributed to your children or heirs. In this way, by means of a trust, you can prevent a second husband or his heirs from sharing in your estate.

Aside from assuring that your children or heirs will receive the residue of your estate that is not necessary for the support of your wife during her lifetime, there are other advantages. Many widows have been very successful in increasing the estates left them by their husbands. But these are the exception. There are more instances where widows have dissipated through unwise investments and trusting the wrong people. The management and safe investment of a fund upon which your widow may be dependent is best left to a trustee if your estate is sufficient to warrant the costs of a trust. Frequently, the costs of administering a trust involving a moderately sized or large estate will be a fraction of the tax savings which the use of trusts often make available. Another important advantage of a trust is the "spendthrift" clause by which you can provide that your widow's and children's income shall not be subject to their debts.

Marital Trusts

You can leave up to half of your estate to your wife tax free. This exclusion was incorporated into the federal tax law in 1948 and is called the marital deduction. In order to qualify for the marital deduction, your wife's share must be left to her outright or you can leave it in a trust from which she will derive the income as long as she lives with the right to determine its disposition upon her death. If you wish, you can provide that the trustee can pay her out of principal in case of an emergency and that unless she directs otherwise, the trust is to go automatically to your children or other persons. If you are not concerned that your wife may dissipate funds through unwise investments, you may even provide that she can withdraw all or part of the principal of the marital trust at any time. To the extent that she uses up the marital trust during her lifetime, either for her own support or for gifts, there will be a reduction of the estate to be taxed upon her death.

Because it is necessary, in order to qualify for the marital deduction, that your wife have the right to name who is to be entitled to the principal of the trust at her death (known as a "power of appointment"), it will be subject to estate tax upon her death. Through her own will she can dispose of the marital trust upon her death in any way she sees fit, or, failing to direct otherwise, it will go to those designated in the trust. However, if a marital trust passes to other persons automatically and not under the terms of her will, it will not be subject to probate as part of her estate, and costs of probate to this extent will be avoided.

Nonmarital Trusts

Property in excess of the marital deduction, if left outright to your wife, will be subject to estate tax in your estate and again in her estate when she dies unless it is consumed or given away

Continued

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1. Ford, R. A., and Blanchard, K. P.: J.-Lancet 78:185, 1958.

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during her lifetime. The second tax can be avoided by placing the property in excess of the marital deduction in a "nonmarital" trust. The income of this trust may be paid to your wife, if you so desire. If your wife has a substantial income and no need for income from the nonmarital trust, provision can be made for accumulating the income in accordance with state laws, or distribution to your children or other persons.

The nonmarital trust must be so drawn that it will not be in your wife's estate upon her death. Nevertheless, certain provisions can be included in this trust for her benefit without destroying its tax-saving features. The income can be paid to her and she can be given the noncumulative right to withdraw up to $5,000 a year or 5% of the trust principal, whichever is more, for any purpose. In addition, the trustee can be given discretion to apply the trust principal for her support or maintenance, or for the support, maintenance or education of the children dependent upon her for support.

Assume that under your will you have left half of your estate to your wife either outright or in a trust which qualifies for the marital deduction. The other half of your estate is left in a nonmarital trust under which your wife is entitled to the income during her life and the trust property is distributed to your children at her death. Your wife can be given the option to have the income distributed to the children or accumulated for them instead of having it paid to herself.

Tax Saving

The use of a testmentary trust to save federal estate taxes can best be explained by example. Assume that Dr. Jones has a debt-free estate of $250,000 and that his wife has no estate of her own. Dr. Jones' children are married and in good financial circumstances. Therefore, he has provided in his will that his entire estate be left to his wife outright, with the knowledge that his wife, in turn, will make provision for the children in her will. Dr. Jones passes away, and 10 years later Mrs. Jones dies. Because there was sufficient income from the estate to provide for her support, the estate left to the children is intact.

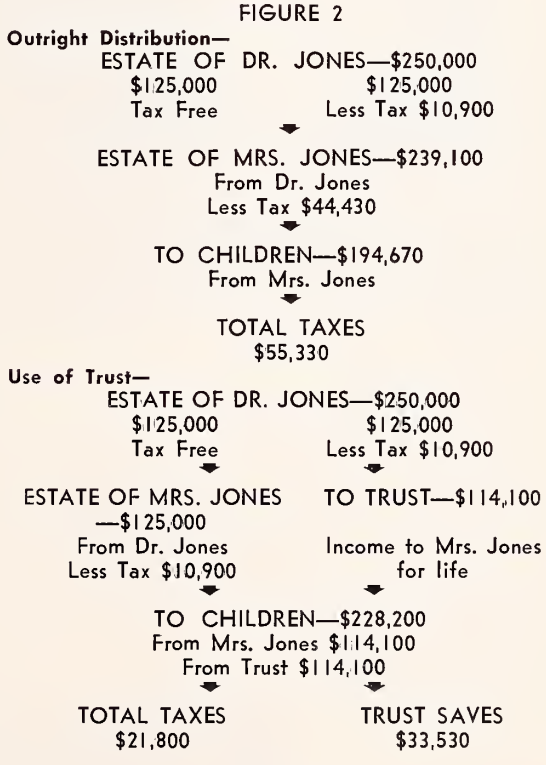
Figure 1 (October issue) is a comparison of the combined estate taxes that will have to be paid at the deaths of Dr. and Mrs. Jones, and the substantially lower taxes that would have been incurred if Dr. Jones had provided for a trust under his will. For purposes of illustration, the estate tax shown is the gross tax before any allowable deductions for state inheritance taxes. However, the state taxes are relatively small and the use of the gross federal estate tax provides a reasonable over-all picture of the death-tax liability.

It can be seen in Figure 2 that at the death of Dr. Jones, only half of the value of his estate, $125,000 is subject to estate tax. Since he has left his entire estate to his wife, the marital deduction permits half his estate to pass to her tax free. Applying the rates shown in Table 3 (December 1962 Issue) the tax amounts to $10,900. Mrs. Jones receives $239,100 net from her husband's estate.

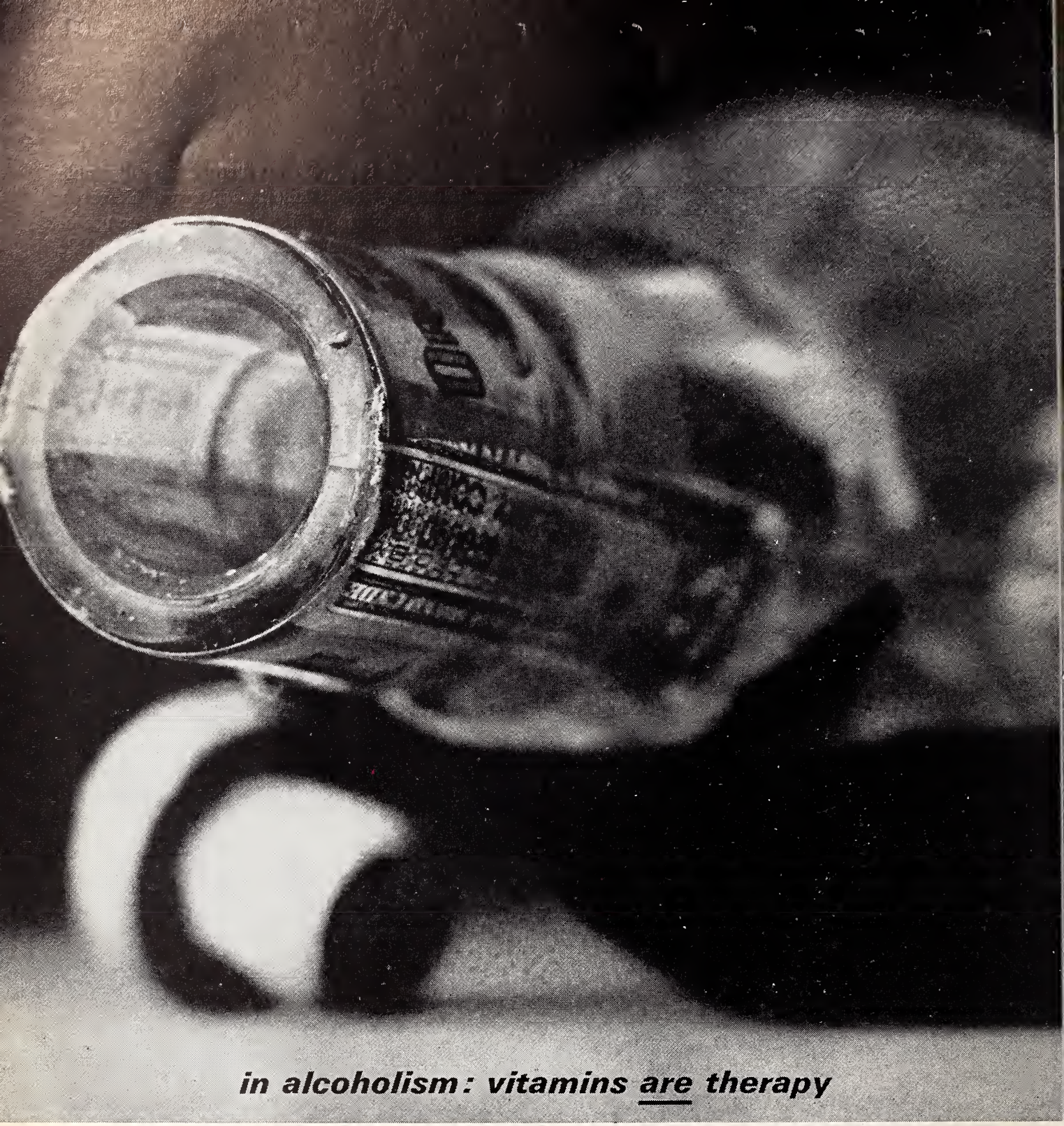
At the death of Mrs. Jones, a tax of $44,430 will have to be paid because there is no 50% marital deduction to reduce her taxable estate. The combined estate taxes on the $250,000 originally left by Dr. Jones amounts to $55,330.

If Dr. Jones had provided for a trust in his will, the estate passing to his children could have saved $33,530 in estate taxes. Referring to Figure 2, assume that Dr. Jones had left half his estate outright to his wife and the other half in trust to be distributed to his children at the death of Mrs. Jones but with the provision that she would receive the income during her lifetime.

FIGURE 2



Continued



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Vitamin B_6 (Pyridoxine HCl)	2 mg.
Vitamin B_{12} Crystalline	4 mcgm.
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At the death of Dr. Jones, the marital deduction would permit half his estate to go tax free to Mrs. Jones, and the other half left in trust would subject the estate to a tax of $10,900. The trust plan provides no tax savings at the death of Dr. Jones, but there is a very substantial savings in taxes at the death of Mrs. Jones. At her death, her estate will amount to $125,000 (instead of $239,100) and the estate tax will amount to $10,900. Even though she received the income from the trust during her lifetime, the trust property is not included in her estate and it is distributed tax free to the children. The trust is responsible, therefore, for a tax savings of $33,530.

The facts as outlined in Figure 2 assume that Dr. Jones will predecease his wife. If she should die first, the marital deduction would be unavailable to Dr. Jones' estate and the tax liability would be significantly greater. In order to minimize taxes without gambling as to which spouse dies first, estate planners recommend that the estates of husband and wife should be equalized by lifetime gifts between them.

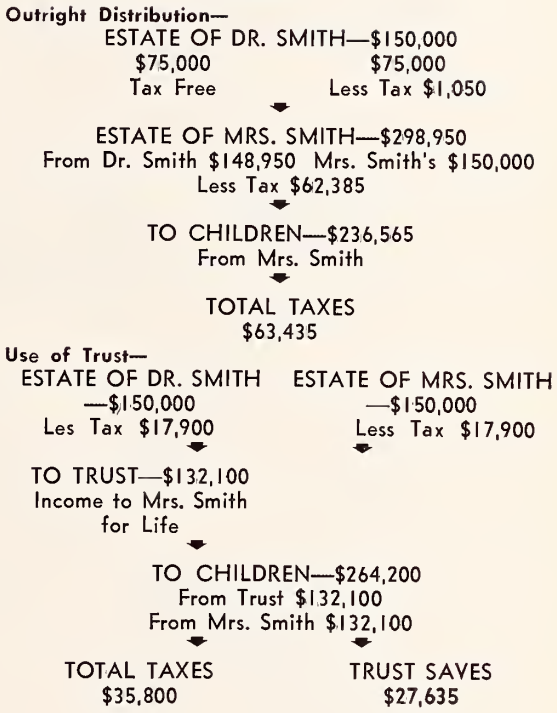
Figure 3 outlines an example in which through lifetime gifts Dr. Smith and his wife each have an estate of $150,000. Assume as in the prior example that Dr. Smith leaves his estate outright to his wife. Because of the marital deduction, only half of the estate, $75,000, is subject to estate tax, amounting to $1,050.

At the death of Mrs. Smith, her estate amounts to $298,950, which includes the $148,-950 which she received from her husband's estate. The estate tax amounts to $62,385, or combined taxes of $63,435 on both estates.

Assume that Dr. and Mrs. Smith agree to follow the trust plan outlined in Figure 3. Dr. Smith provides in his will that his entire $150,000 estate is left in trust to be distributed to his children at his wife's death, with the income being paid to her during her lifetime. Mrs. Smith provides in her will that her entire estate is left outright to her children at her death, since Dr. Smith has current income from his practice and no need for income from his wife's estate. The estate-tax consequences would be the same whether property is left outright to children or in trust for them subject to the payment of income to a spouse during his lifetime.

It should be noted that the plan agreed upon between Dr. and Mrs. Smith does not take advantage of the marital deduction, but the tax

FIGURE 3



savings in avoiding the taxation of the same property in 2 estates more than offsets the value of the marital deduction. Also, it is immaterial whether Dr. Smith or his wife passes away first; the combined taxes of both their estates is the same. Figure 3 shows how a relatively simple estate plan can increase a net inheritance to children from $236,565 to $264,200—a savings of $27,635.

Living Trust

A living trust is one which you create to take effect while you are living as distinguished from a testamentary trust which becomes effective upon death. There are 2 types of living trusts, revocable and irrevocable.

An irrevocable trust involves a gift of the present value of whatever you have given away in trust. If you retain no right to the trust income or property, the trust income will not be taxable to you during your lifetime and the trust property will not be subject to estate tax at your death.

The creator of a revocable trust can terminate the trust at any time and repossess the trust property. Since such trusts do not involve completed gifts they are not subject to gift taxes. Income from the trust is taxed to the creator and the trust property is subject to estate tax upon his death.

Continued

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For example, assume that the bulk of Dr. Roe's estate consists of $200,000 in stocks and bonds. He creates a revocable trust, designating his bank as trustee, himself as income beneficiary during his lifetime, and his wife and children the recipients of the principal at his death. By means of this trust, Dr. Roe, a busy doctor, has freed himself of the responsibility of managing the trust property, while at the same time providing for the supervision of his investments by experienced specialists. He can modify the trust agreement, or if he so desires, he can terminate the trust and resume possession of the trust property at any time. If Dr. Roe should die while the trust is in effect, his wife and children will receive the trust property automatically without the delays and costs of probate. However, this savings may be offset to some extent by trustee's fees charged while the trust is in existence.

A trust is a confidential arrangement and not a matter of public record. In contrast, when a will is probated, the inventory of the property in the estate and who is to receive it becomes public information. This is an important consideration to some people.

Short-Term Trust

The short-term trust can reduce your income taxes during high income years. It involves an irrevocable gift in trust of the right to income from stocks, bonds, or other property which are returned to the maker of the trust after a period of time when the trust is terminated.

Generally, when an irrevocable gift in trust is made and the income is payable to some person other than yourself, the income will be taxed to that person. If the trust income is paid to a member of your family who is in a lower income-tax bracket, the total income taxes of the family are reduced. The short-term trust is feasible where your investment income is more than your present needs but you do want a return of the capital at a later date.

A short-term or reversionary trust can be set up for a period as short as 10 years and a day or for the lifetime of a beneficiary even if his life expectancy is less than 10 years. At the end of the period, the trust property is returned to the maker of the trust. As a practical matter, you do not give up the property, but merely the right to its income for a period of time. The income beneficiary, or the trust itself if the income is accumulated for distribution to the beneficiary at the end of the period, will be treated as the taxpayer.

To the extent that it exceeds gift-tax exemptions, a gift tax must be paid on the present value of the gift of income. (The Internal Revenue Service has tables by which the value of income gifts may be computed for gift-tax purposes.) If the maker of the short-term trust should die, the trust property will be subject to estate taxes.

Short-term trusts are especially useful in providing a fund to educate a child. If income from a trust is used to pay the support or education of the donor's child, the income will be taxed to the donor. For this reason, the trust should be terminated a year or more before the child is to enter college. When the accumulated income is distributed to the child, it becomes his property. The child can later use the funds for such purposes as he may desire, including his college expenses. Income may be accumulated in the trust provided it is distributed to the beneficiary unconditionally when the trust terminates. Income accumulated in the trust is taxed to the trustee and the corpus of the trust is returned to the donor when the trust expires.

In his peak income years, the financially successful doctor is not dependent upon investment income for his current needs, nor is such after-tax income likely to be relatively substantial. But investment income may be important during his retirement years. Therefore, he would be unwise in disposing of his estate through premature gifts or permanent irrevocable trusts. However, income trusts that will automatically revert to him when he is of retirement age deserve consideration.

Life Insurance Trust

A life insurance trust is an arrangement whereby the proceeds of your policies are paid to a trustee under a trust agreement. The trustee collects the insurance proceeds upon your death, invests it, and pays out the income and principal of the trust according to your instructions. Life insurance trusts are usually drawn to give the trustee board discretionary powers to meet financial emergencies and the changing needs of the beneficiaries.

Insurance companies cannot exercise discretionary powers. Deferred settlement options are offered in most insurance policies, and, depending upon the nature of your estate and the needs

Continued



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1. Borota, A., and Grinell, R. N.: J. Amer. Geriatrics Soc., 10:413, 1962.
2. Spoor, H. J.: N.Y. State J. M. 58:3292, 1958.
3. Lubowe, I. I.: Western Med. 1:45, 1960.
4. Weissberg, G.: Clin. Med. 7:1161, 1960.

of your beneficiaries, the selection of a deferred settlement option may be entirely satisfactory in providing your beneficiaries with fixed regular payments over a specified period of time. But the insurance company has no discretion to increase such payments to meet emergencies and the changing needs of your beneficiaries.

The cost of an insurance trust is not justified if your beneficiaries have other substantial resources or the amount of your life insurance is only enough to provide for relatively small payments for a limited period.

Insurance trusts may be funded or unfunded. With a funded trust, the trustee, for a fee, manages a trust fund which you create and pays the premiums on your policies from the income. Upon your death, the proceeds of the policies become a part of the trust to be administered in accordance with the trust provision. An unfunded trust is dormant until your death, at which time the trustee collects the proceeds of your insurance and commences administration of the trust. The trustee assumes no responsibility for the payment of premiums and ordinarily corporate trustees charge no fees until the trust becomes active upon your death.

Investment of Trust Funds

Trustees are required by law to be prudent in their investment of trust funds. Trust companies employ investment analysts, attorneys, real estate and other specialists whose collective judgment contribute to the investment and management of the trusts for which they are responsible. Trustees are not allowed to derive any profit on the securities they buy or sell for trust estates and by law, their compensation is limited to reasonable fees. Typical fees charged by corporate trustees are shown in Table 6.

The income of a trust depends upon the investment judgment of the trustee as well as the prevailing financial situation. The rate of return is therefore likely to vary over the years. Trustees do not guarantee a certain rate of income on trust investments nor do they guarantee the principal of their trust investments. However, state laws provide that trustees shall exercise the judgment and care under prevailing circumstances which men of prudence, discretion, and intelligence use in the management of their own affairs. In making trust investments they must consider probable income and safety of the capital and avoid speculation.

Table 6. Typical Trustee's Fees Charged by Trust Companies Living Trusts and Trusts Under Wills

Annual Fee	
For stocks and bonds, based upon the fair value:	
On first $ 50,000	3/5 of 1%
On next 50,000	2/5 of 1%
On next 400,000	1/3 of 1%
On next 1,500,000	1/4 of 1%
For mortgages, based upon face value:	
3/4 of 1%	
Distribution Fee	
Based upon fair value of personal property and real estate distributed:	
On first $ 500,000	1%
On next 500,000	3/4 of 1%
Over 1,000,000	1/2 of 1%

Usually, a trust company or bank is so organized that each trust officer is assigned a limited number of trusts for which he is responsible. He is available to the beneficiaries of the trust and their relatives to counsel with them regarding the financial aspects of the trust as well as personal matters such as the care and education of children and the emergency financial needs of beneficiaries. In some instances, a friend, relative, or business associate of the creator of the trust may be appointed co-trustee and he too will share in the problems associated with the trust estate and its beneficiaries.

Corporate trustees are subject to various governmental safeguards. State laws require banks to deposit securities to insure faithful performance of trust obligations. Officers and employees are covered by fidelity bonds and trust departments are periodically examined by state or federal examiners.

Selecting a Trustee

You have the choice of appointing either an institution or an individual to serve as trustee for any trust which is to be become effective either while you live or upon your death. This choice is often and sometimes unwisely determined by the matter of fees. A friend or relative may be willing to undertake the responsibility of trusteeship gratis. However, the investments of an unskilled amateur can be far more costly than the charges of a corporate trustee.

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Board of Medical Examiners

FBI ASKS AID

Mr. Frank Pappas, District Supervisor of the Federal Bureau of Narcotics at Minneapolis, has requested that the Minnesota State Board of Medical Examiners make available to the medical profession information on the following individuals in order that Minnesota physicians may be aware of the backgrounds of these persons if they should attempt to obtain narcotic drugs:

Thomas Baxter Fordham, Jr.

Fordham, 37, who was born on December 29th, 1925 at Dayton, Ohio, resides near Nevis, Minnesota. He is five feet, eleven inches tall, weighs 228 pounds, and has brown hair and brown eyes. In 1948 Fordham was convicted in Federal Court in Cincinnati, Ohio of the offense of forging prescriptions for narcotic drugs, at which time he was sentenced to a two year term at the United States Public Health Service Hospital at Lexington, Kentucky. The sentence also provided that he would be on probation for a period of four years after the expiration of the two year sentence.

Following his release from the hospital, Fordham was arrested in Phoenix, Arizona on a narcotic charge where he received a six-month suspended sentence and he was returned to the hospital at Lexington, Kentucky for violation of his probation. Fordham was released from the hospital after eleven months. He has also on two occasions entered the United States Public Health Service Hospital at Lexington, Kentucky as a voluntary patient.

In 1954 Fordham was arrested at West Palm Beach, Florida on a narcotic charge but was given a suspended sentence on condition that he would leave the state. At Malone, New York, after pleading guilty on July 31st, 1957 to a charge of the illegal possession of a revolver, Fordham was sentenced to a term of six months but the sentence was suspended and he was placed on probation on condition that he enter an institution for the treatment of his addiction. On December 20th, 1957 Fordham entered a plea of guilty before Judge Paul Kirk of the Essex County Superior Court at Lawrence, Massachusetts to two charges of illegal possession of narcotic drugs, at which time the Court sentenced him to a term of three to three and one half years in the Massachusetts State Prison at Walpole.

For more complete information regarding Fordham inquiries may be directed to the Federal Bureau of Narcotics, 402 Federal Building, Minneapolis, or the Minnesota State Board of Medical Examiners, 230 Lowry Medical Arts Bldg., St. Paul, Minnesota.

John LaTuff

LaTuff, no permanent address, who has given birth dates of March 18, 1910 and 1901, has a police record dating back to 1928. He is 5′ 3½″ in height, weighs 105 to 111 pounds, has black kinky hair, wears glasses and usually has a mustache. It has been reported by the District Supervisor for the Federal Bureau of Narcotics that LaTuff has also used the following names: Robert Coleman, John Kasson, and Joseph John Kelsie.

Although the records do not disclose that LaTuff has been convicted of any offenses relating to narcotic drugs, he has a number of court convictions involving fraud, such as using the mails to defraud, grand larceny and issuing fraudulent checks. Prior to being sentenced in court after his most recent conviction, LaTuff stated that his addiction to narcotic drugs has been responsible for much of his trouble with the

Continued

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Jack LaTuff



Thomas B. Fordham

law. On October 25th, 1962 LaTuff entered a plea of guilty in St. Paul Municipal Court to a charge of issuing a fraudulent check for $39.95 and he was immediately sentenced by Judge J. Clifford Janes to serve a term of ninety days in the Ramsey County Jail.

On January 29th, 1951 LaTuff entered a plea of guilty in Ramsey County District Court to an information charging him with grand larceny in the second degree and on February 5th, 1951 the defendant was sentenced to serve a term of not to exceed five years in the State Prison at Stillwater, Minnesota. LaTuff had bilked Twin Cities merchants out of several hundred dollars worth of merchandise by fraudulent misrepresentations.

On November 29th, 1945 LaTuff was indicted by a Federal Grand Jury in St. Paul for using the mails to defraud and after pleading guilty to the charge on April 4th, 1946 he was sentenced by the Hon. Robert C. Bell, Judge of United States District Court, to serve a term of one year and three months. At that time LaTuff advertised coin machines for sale and upon receiving inquiries he requested a $200 deposit before the machines could be sent out on approval. The evidence disclosed that LaTuff had no machines.

If Minnesota physicians are solicited for narcotic prescriptions by LaTuff after he is released from the Ramsey County Jail, Ralph Hitchens, Supervisor of the Narcotics Squad of the Minneapolis Police Department, has indicated that a call to his home at any time of the day or night will be followed by the apprehension of this person. Mr. Hitchens' residence telephone number is PA 2-4854. LaTuff will also be picked up by the St. Paul Police if a call is placed to the Morals Division of the St. Paul Police Department. The Minnesota State Board of Medical Examiners may also be contacted at CA 2-2064 or the Federal Bureau of Narcotics at 339-0112.

MINNEAPOLIS BARTENDER SENTENCED FOR ASSAULT IN THIRD DEGREE

Re: State of Minnesota vs. Robert McLeester

On November 27th, 1962 Robert McLeester, 40, 13924 County Road 6, Plymouth, Minnesota was sentenced by the Hon. Irving R. Brand, Judge of the District Court of Hennepin County, to a term of ninety days in the Minneapolis Workhouse, the sentence being stayed, however, and the defendant placed on probation for a period of one year. McLeester had entered a plea of guilty to the charge before Judge Brand on November 29th, 1962.

The basis of the charge against the defendant was information given by a Minneapolis woman in a signed statement that McLeester had on two occasions, the last time being on September 24th, 1962, attempted to abort her by inserting a catheter. The woman later expelled a fetus after being hospitalized in a Robbinsdale hospital. A criminal complaint charging the defendant with the crime of abortion had been issued on October 2nd, 1962 by the Hennepin County Attorney's office and on October 11th, 1962 McLeester waived a preliminary hearing in Minneapolis Municipal Court, being bound over on that date to Hennepin County District Court for trial. However, the abortion charge was dismissed by the Court and the third-degree assault charge substituted. There was no evidence that the defendant had received a fee in connection with the offense. The defendant was a part-time bartender in Minneapolis and was also employed as a botanist, but he had not been trained in medicine and held no license to practice any form of healing in the State of Minnesota.

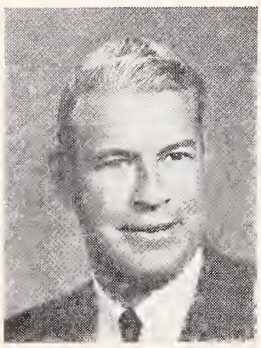
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In Memoriam

HAROLD R. TREGILGAS

Dr. Harold R. Tregilgas, 67, South St. Paul surgeon, died December 13. He was born at St. Paul and received his medical degree from Northwestern University in Chicago. Dr. Tregilgas was a former chief of staff at St. Joseph's hospital and a director of Divine Redeemer hospital, South St. Paul.

He was a member of the South St. Paul Council of the Knights of Columbus, Abner Rude Post 495 of the American Legion, a fellow of the American and International College of Surgeons, and a member of the Minnesota Board of Examiners in the Basic Sciences. He was a member of the Ramsey County Medical Society, Minnesota State Medical Association and American Medical Association.

Dr. Tregilgas is survived by his wife, two daughters, and three sons, one being Dr. Richard B. Tregilgas of St. Paul.

WILBURN O. B. NELSON

Dr. Wilburn O. B. Nelson, 54, St. Peter physician died December 2. He was born at Superior, Wisconsin and received his degree in medicine from the University of Minnesota.

He was active in the Order of the Eastern Star, an advisor for Job's Daughters and DeMolay and holds the Legion of Honor and Cross of Honor in DeMolay. Also, he was active in Masonic work and served as Worshipful Master of the A.F. & A.M. lodge at Fergus Falls in 1941 and high priest of the Royal Arch Masons. He formerly served on the Fergus Falls school board, was vice president of the Minnesota Sanitary Conference, and health officer.

Dr. Nelson was a member of the Park Region Medical Society, Minnesota State Medical Association, American Medical Assoication, Minnesota Trudeau Society and the N. W. Pediatric Society.

He is survived by his wife and two sons.

SAMUEL B. SOLHAUG

Dr. Samuel B. Solhaug, Sr., 74, Minneapolis obstetrician and gynecologist for forty-two years, died January 5. He was born in rural Pope County, Minnesota and received his medical degree at the University of Minnesota. During the World War I he served as a medical officer in Italy and was decorated by the Italian government for his service.

He was a member of the Hennepin County Medical Society, Minnesota State Medical Association, American Medical Association and the American College of Surgeons. Dr. Solhaug was also on the University of Minnesota medical school faculty until his retirement.

He is survived by his wife, a daughter and three sons, two of whom are Dr. Samuel Solhaug, Jr. of Minneapolis and Dr. John Solhaug of Pittsburgh.

WALTER JAY-JEDRZEJEWSKI

Dr. Walter Jay-Jedrzejewski, 42, Fridley physican, was killed December 19th in a plane crash at Warsaw, Poland enroute to see his mother. "Dr. Jay," as he was known to his patients, was born at Przystajn, Poland and obtained his degree in medicine at the University of Erlangen, Germany. He came to the United States in 1956 and was an intern for two years at St. Luke's Hospital.

Dr. Jedrzejewski was a member of the medical staff of Glenwood Hills hospital and a member of the Hennepin County Medical Society, Minnesota State Medical Association and American Medical Association.

He is survived by his wife and a daughter.

IRVING A. PREINE

Doctor Irving A. Preine, 77, Minneapolis practitioner for forty-two years, died December 14. He was born at New Ulm, Minnesota and received his degree in medicine from the University of Minnesota.

For many years, Dr. Preine was chief of staff at St. Andrews Hospital and a member of Arcana Lodge, No. 187, A.F.&A.M. He was a 50 Club and Life member of the Hennepin County Medical Society and the Minnesota State Medical Association. Dr. Preine was also a member of the American Medical Association.

He is survived by his wife and a daughter.

ROBERT WILLIAMS

Dr. Robert Williams, 89, a practicing Minneapolis physician for nearly 40 years, died December 26. He was born at Carthage, Illinois and received his degree in medicine from the Rush Medical School in Chicago.

He was a former chief of staff at St. Barnabas and vice president of the Hennepin County Medical Society. After his retirement in 1946, he became a member of the examining board of physicians for Selective Service. Dr. Williams was a charter member of the Joppa Masonic Lodge No. 300, a member of the Hennepin County Medical Society, Minnesota State Medical Association and American Medical Association.

He is survived by his three sons.

RUDOLPH L. CROOK

Dr. Rudolph L. Crook, 70, Duluth physician died December 14. He was born at Marisstad, Sweden and received his M. D. degree from the University of Minnesota. Dr. Crook was a medical missionary in China before going to Duluth, and also served in Malaya for the Far Eastern Bureau of the League of Nations. He was a life member of the Chinese Medical Assocation, and worked on malaria control for the foreign missions department of the United Baptist Christian Church. He was a member of the St. Louis County Medical Society, Minnesota State Medical Association and American Medical Association.

Dr. Crook is survived by his wife.

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Poythress, White Section, Page 808 (1963 edition) and Product Identification Section

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Within the past year, Blue Shield has been able to increase its market penetration in Minnesota.

Total gain as of Dec. 1, 1962, over the same time a year previous was nearly 9,000 new members.

Setting the pace for the gain were new products, offered for the first time in 1962. These were the new "M-Series" and the Major Medical contracts.

The M-Series provides more benefits to more Minnesotans with higher income levels. It's feature is "paid in full" benefits for incomes up to $7,500 a year, with corresponding higher payments to doctors according to the California Relative Value Scale.

The Major Medical contract, for a few cents a month, provides benefits for extraordinary medical and surgical bills. It is sold in conjunction with other Blue Shield contracts, and is regarded for its price as a "top priority" purchase.

Though it has been on the market a short time, the M-Series has made substantial gains in the total percent of Blue Shield participants. It is now covering 2.1 percent of all Blue Shield members, although it was announced to the public for the first time through the press in November. However, several months previous to that, the Blue Shield M-Series was purchased by federal employees, General Motors and Ford Motor Co. These three groups, which are known to be sophisticated buyers, provided the first impetus to sales of the M-Series.

Major Medical coverage, again a recent development, now covers more than 15,000 persons. In August, the major medical plan covered a total of 2.1 percent of the total participants of Blue Shield. However, by the end of November, the total percent was up to 2.7 percent, a good gain in only four months.

The hospital rider to the basic Blue Shield contract has shown a rise in one year. In November of 1961, Blue Shield covered 10,158 participants. One year later, November, 1962, Blue Shield had 35,142 participants under the hospital rider.

As of Jan. 21, Blue Shield's radio show, "News in Medicine," was being broadcast by five radio stations throughout Minnesota.

Aired five times a week, the show is a fast-moving five-minute wrap-up of new developments and current information of interest in the world of medicine. The "news" concept of presenting the material as well as the format of the show have by now attracted considerable attention throughout the nation and the basic foremat of the show is now being utilized in New Jersey, Florida and Michigan.

The show originated last year as a three-times a week show on a large Twin-Cities radio station.

Now the program will be broadcast in the Twin Cities, Duluth, St. Cloud, Detroit Lakes, Mankato and Austin. The change to the local stations is designed to give Blue Shield representatives more aggressive sales support on a local level. The diversification to the local stations will last 13 weeks, at which time the ad campaign results will be studied.

God may forgive you for your sins, but your nervous system won't.—Alfred Korzybski



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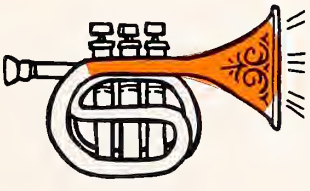


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Accustomed as we are to talking about purity, potency, stability, things like that, we thought you might like to know that mothers can make a nice saving on Vi-Daylin Chewables for the next few weeks. Nothing complicated. She buys a bottle of 100 at the regular price. She gets a bottle of 30 free. Big deal? Well, not a bad one. It means she's getting her Vi-Daylin for less than 3¢ per daily dose per child. You might find some vitamins somewhere that would cost even less. But will the youngsters take them?

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First cousin to an orange. Next door neighbor to a lemon – that's new VI-DAYLIN® CHEWABLE with *Entrapped* Flavor.

They look like footballs and smell like candy and you've never tasted a chewable vitamin quite like them. What surprises you is not so much what you taste as what you *don't* taste. Vitamins. They simply don't come through – either in taste or aftertaste. Even the riboflavin is trapped and civilized.

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Meetings and Announcements

FEBRUARY

UCLA School of Medicine will offer three international clinical postgraduate programs as follows: February 20-March 2 in Mexico City; March 16-April 7 in Israel and Greece; April 12-May 4 in Japan and Hong Kong. Contact the University.

Sioux Valley Medical Association meeting in Sioux City, Iowa, February 20-22 at the Lutheran Hospital and Sheraton Martin Hotel. Contact the Association in Sioux City, Iowa.

American College of Chest Physicians Seventh International Congress, New Delhi, India, February 20-24. Contact: Murray Kornfeld; 112 E. Chestnut; Chicago.

University of Colorado Medical School postgraduate course "Management of Trauma" February 27-March 1 in Denver. Contact: University.

MARCH

Fifteenth Annual Teaching Seminar of the International Academy of Proctology, March 16-21, Las Vegas, Nevada. Contact: Jacob Reichert, M. D.; 550 W. Thomas Rd.; Phoenix, Arizona.

Fourth Oklahoma Colloquy on Advances in Medicine: "Pulmonary Insufficiency," March 28-30, University of Oklahoma Medical Center Auditorium. Contact: Dr. Robert Byrd; University; 800 N. E. 13th; Oklahoma City.

Mayo Clinic and Foundation Clinical Reviews, March 11-13 and March 18-20; Theater; Mayo Civic Auditorium; Rochester. Contact: M. G. Brataas; Mayo Clinic; Rochester.

University of Iowa postgraduate conference "Infertility and Endocrinology," March 27. Contact: John Gius, M. D.; College of Medicine; Iowa City, Iowa.

Orthopaedic and Rehabilitation Seminar, March 9, Younker Memorial Rehabilitation Center, Des Moines, Iowa. Contact: Wm. D. deGraveles, Jr., M. D.; 1200 Pleasant Street; Des Moines.

American College of Allergists Graduate Course and Nineteenth Annual Congress, March 24-29, Americana of New York, New York. Contact: John Gillaspie, M.D., 2141 14th St., Boulder, Colorado.

American College of Surgeons Sectional Meeting, Pittsburgh, Pa. March 11-14 at the Penn-Sheraton. Contact: Dr. W. E. Adams at the College.

Department of Otolaryngology, University of Illinois College of Medicine postgraduate course in laryngology and bronchoescophagology March 18-30. Contact the Department at the College in Chicago.

Medical College of Georgia postgraduate course "Gynecology Problems in Private Practice," March 12-14, Augusta, Georgia. Contact: the College.

New Orleans Graduate Medical Assembly, March 4-7, Roosevelt Hotel, New Orleans, Contact: The Assembly, 1430 Tulane Ave., New Orleans.

American Industrial Health Conference, March 18-21, Washington, D.C. Contact: The Conference, 55 E. Washington, Chicago.

American Medical Association Medicolegal Symposium, Americana Hotel, Miami Beach, March 8-9. Contact: C. Joseph Stetler, AMA.

APRIL

Harvard Medical School postgraduate course "The Medical Care of the Adolescent" April 29-May 3, Children's Hospital Medical Center; Boston, Mass. Contact: Assistant Dean, Harvard Medical School.

ANNOUNCEMENTS

1963 AAPS Essay Contest for High School Students. Participants will have the following choice of topics: "The Advantages of Private Medical Care" or "The Advantages of the American Free Enterprise System over Communism." National prizes of $2,675 will be offered with the first prize being $1000. Write: Association of American Physicians & Surgeons; 185 North Wabash Avenue; Chicago or Dr. James Cosgriff at Olivia for information.

* * *

University of Minnesota medical continuation courses: March 1-2 Neurosurgery, March 15-16 Trauma. April 29-May 1, Ophthalmology. For further information write 1342 Mayo Memorial, University of Minnesota, Minneapolis.

* * *

National Geriatrics Society Second Annual Essay Contest "Relationship of Geriatric Institutions to Community Life." Deadline: March 15, 1963. Contact: Joseph Enos, M.D., 38650 Mission Blvd., Niles, California.

* * *

American College of Physicians postgraduate courses offered:

March 4-8—"Physical Methodoligy in Medical Research," Massachusetts Institute of Technology, Cambridge, Mass.

March 18-23—"Recent Advances in Cardiovascular Diseases," The Mount Sinai Hospital, New York, N.Y.

* * *

Next scheduled examination (Part II) oral and clinical of the American Board of Obstetrics and Gynecology will be held at Edgewater Beach Hotel, Chicago, April 29-May. Notices will be sent candidate of exact time.

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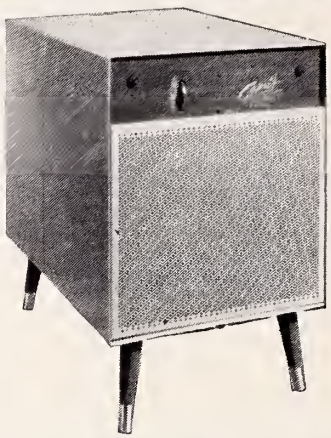
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Physician's Diary

Dr. Coleman J. Connolly, clinical associate professor of surgery, University of Minnesota, was one of the panelists during the Tenth Annual Symposium on Trauma held in Detroit, Michigan in December. The subject of the discussion was "Patient with Multiple Injuries." Dr. Connolly also spoke on "Tracheal Bronchial Lavage in the Prevention of Pulmonary Complications."

* * *

Dr. Charles Vandersluis, Heron Lake, was named chairman of the local Board of Health at the last meeting of the village council, and **Dr. F. A. Thompson,** St. Paul, has been elected chief of staff of St. Luke's hospital. **Dr. D. E. Westover** was elected vice chief of staff; **Dr. H. R. Mundahl,** secretary, and **Dr. M. J. Hertz,** member at large of the executive committee.

* * *

Dr. David Vail, director of medical services for the state department of public welfare, was principal speaker for the mental health center meeting held in Mankato, and **Dr. R. R. Wright** of Austin addressed the Mower County Medical Auxiliary at their last meeting. His topic was "Legislation."

* * *

Doctors D. Thane Cody, Richard Emslander, Alan Sessler, Lenore Sheridan, and Gerald Tuohy have been appointed as consultants to the staff of the Mayo Clinic. The Clinic also announced the names of seven new fellows.

* * *

Dr. Arthur Zierold, Maplewood, was named winner of the St. Barnabas Bowl, which is the Hennepin County Medical Society's annual award for outstanding community service. This year the award was given to Dr. Zierold for his great influence on surgeons and surgery throughout the Upper Midwest.

* * *

New locations: Dr. Vernon Kuhlmann has joined the Alexandria Clinic . . . **Drs. William F. McManus** and **Norman Metcalf** have moved into their new clinic in Princeton . . . **Dr. T. F. Yeager** will join the Mork Clinic in Coon Rapids . . . **Dr. Robert G. Carlson,** has joined the staff of the Lakeland Medical Center in Willmar . . . **Dr. Duane Pansegrau** has left Karlstad and plans to make his home in Iowa City, Iowa . . . **Doctors H. A. Knoche** and **A. F. Dysterheft** have opened up the Gaylord Clinic . . . **Dr. H. W. Bartholdt** will be associated with **Doctors Jack P. Grahek and M. G. Dobler** at the Ely Clinic . . . **Dr. Don Lawler** of Crookston has received an appointment to a residency in ophthalmology at the Public Health hospital and Johns Hopkins Medical School in Baltimore.

* * *

Dr. Wesley W. Spink of Minneapolis, president elect of the American College of Physicians, was the guest speaker at the regional meeting of the ACP held in Rochester, and **Doctors Albert L. Nisswandt** and **William S. Pollard** of Duluth presented a discourse on "Surgical Treatment of Cerebrovascular Disease" at a recent meeting of the Range Medical Society.

* * *

Doctors Alfred Uihlein and **George S. Baker,** members of the section neurologic surgery of the Mayo Clinic, have been elected foreign corresponding members of the Italian Society of Neurosurgery.

* * *

Dr. James F. Hammarsten, University of Minnesota school of medicine, will participate in the Fourth Oklahoma Colloquy on advances in medicine, and **Doctors Frank W. Quattlebaum** and **Jane Hodgson** of St. Paul will serve aboard the S. S. Hope.

* * *

Dr. Merrill D. Chesler, Minneapolis, spoke to the Blue Earth County Bar Association in Mankato. His talk was "Reconstructive Surgery Following Trauma," and **Dr. Anton V. Spraitz,** a Mayo Foundation fellow in obstetrics addressed the Six District Clinical Meeting of the American College of Obstetricians and Gynecologists in Minneapolis.

* * *

Dr. O. Theron Clagget, Mayo, was elected to honorary membership in the Society of Thoracic Surgeons of Great Britain and Ireland. The honor is one which has been conferred upon very few American surgeons.

* * *

Dr. Robert R. Kierland, Mayo, will deliver the Howard Fox Lecture at the New York University Medical Center in New York City, and **Dr. Frank H. Krusen,** president of the Sister Kenny Foundation, served as honorary president of the fiftieth anniversary meeting of the Belgian Society of Physical Medicine in Brussels.

* * *

Dr. Hugh Lynn, pediatric surgeon at the Mayo Clinic, was the guest speaker of the Southwestern Minnesota Medical Society and Auxiliary meeting held in Worthington.

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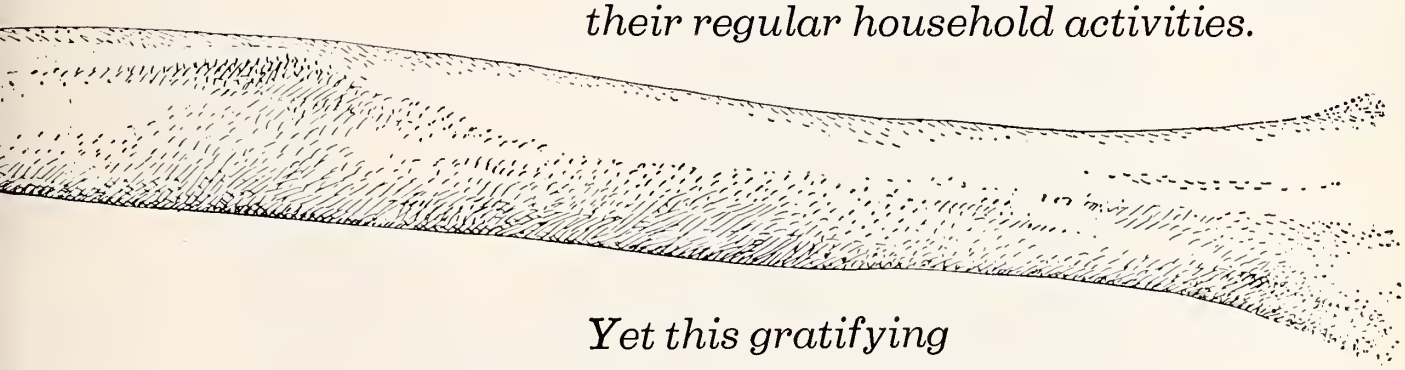
Dr. E. E. Novak was recently honored for his sixty-seven years of service by the New Prague Rotarians, and **Dr. Philip K. Hench,** Nobel prize winner of Rochester, received the City of Hope's Salute to Medical Research award from the City of Hope Medical Center. **New Medical Society Officers: Dr. Roy Good** of Northfield was elected president of the Rice County Medical Society. **Dr. Asa Graham** of Faribault was elected vice-president, and **Dr. Paul Bauer** of Faribault, Secretary . . . **Dr. John Holten of Moorhead** was named president of the Clay-Becker Medical Society; **Dr. Robert N. Watson** of Detroit Lakes, president-elect; **Dr. Olga H. Johnson** of Moorhead, vice president; and **Dr. Mark Odland** of Detroit Lakes, Secretary-Treasurer.

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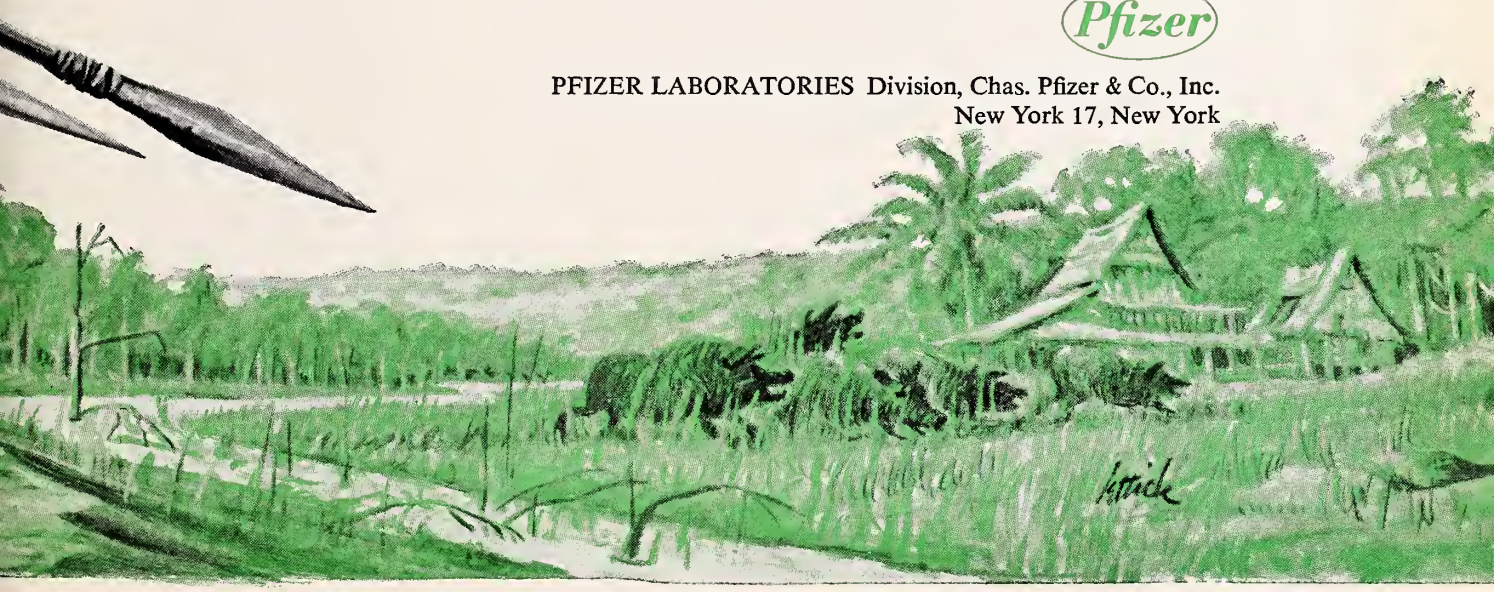
Tsutsugamushi, or scrub typhus, was responsible for incapacitating nearly 7,000 American soldiers during World War II. This disease is prevalent in areas overrun by jungle rats infested with mites carrying *Rickettsia tsutsugamushi.* Symptoms include a primary lesion at the site of the mite-bite, fever reaching as high as 105°, and a cutaneous rash. Injected conjunctivae, deafness, delirium and racking cough mark the advance of the disease. Mortality rates as high as 60 per cent have been reported. Terramycin is one of the antibiotics of choice for rapid and effective control of the acute stage of the infection. Patients become afebrile and virtually asymptomatic 24 to 36 hours after beginning treatment.

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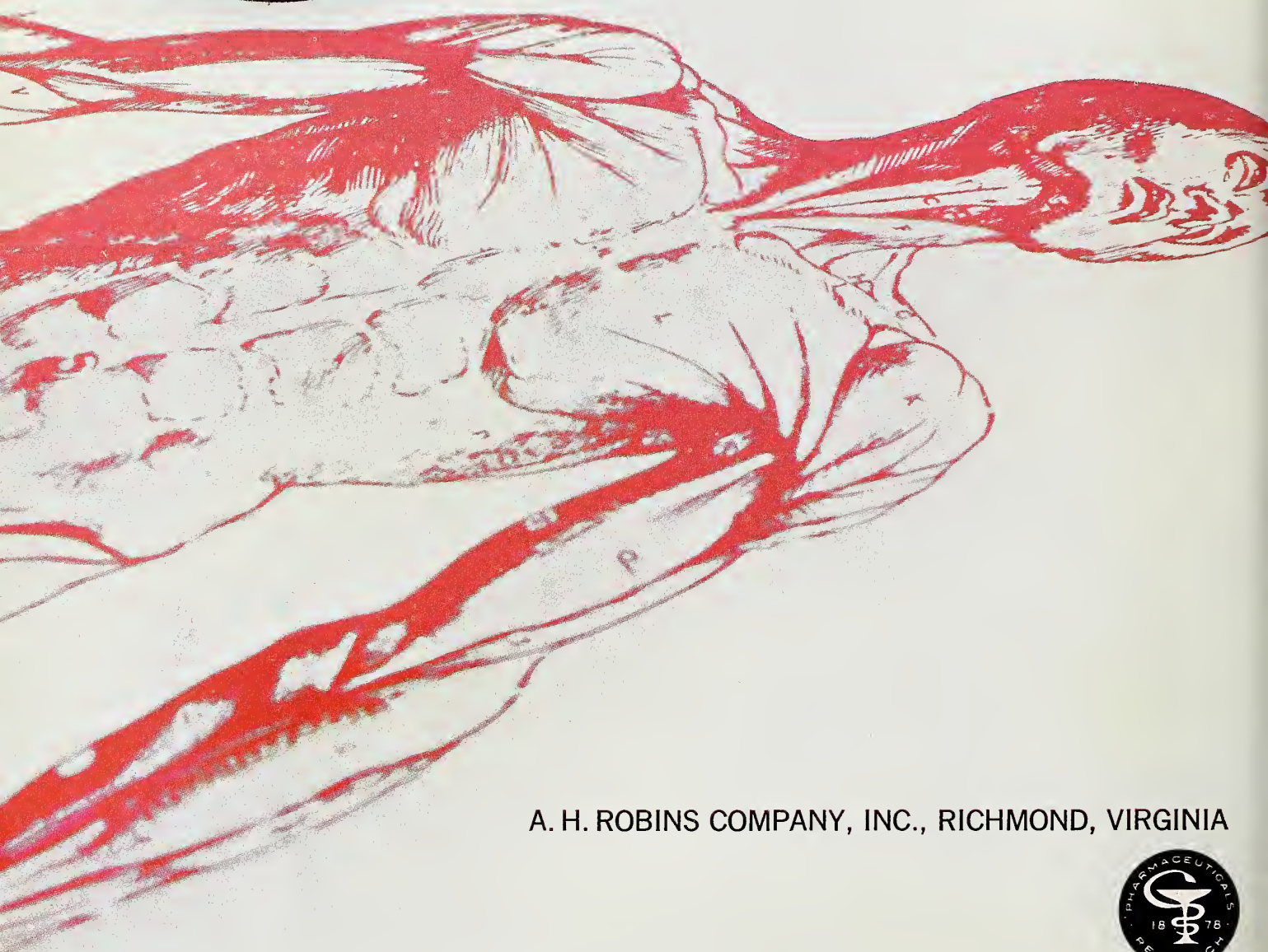
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dosage: For Skelaxin, two tablets t.i.d. or q.i.d. for not longer than 10 days. For Skelaxin-800, one tablet t.i.d. or q.i.d. for not longer than ten days. Dosage for children (6 to 12 years) should be adjusted according to body weight.

side effects: In 1502 patients given daily doses of Skelaxin ranging from 1200 to 9600 mg., 10.5% experienced side effects. These were generally mild, with nausea or gastrointestinal upset being most frequent. Only 0.5% experienced vomiting attributable to the drug, however. Other effects infrequently noted were drowsiness, dizziness, headache, nervousness or "irritability," and a hypersensitivity reaction of light rash. All cleared promptly upon withdrawal of the drug.

precautions: Variations in white cell count and hemoglobin levels have been reported in a few patients. Therefore Skelaxin therapy for more than 10 days is not recommended. A drug relationship was indicated in one of four cases of leukopenia reported in 360 Skelaxin-treated patients. In all cases followed-up, the WBC returned to normal after discontinuance of Skelaxin.

One instance of hemoglobin depression (less than 10 Gm.) which may have been drug-related was reported, in 306 patients; a return to an essentially normal level followed the discontinuance of medication.

One case of jaundice has been reported. Elevation of cephalin flocculation tests in several instances were not paralleled by changes in other liver function parameters. Urinalyses in 280 patients were essentially normal; false positive Benedict's tests, due to an unknown reducing substance in the urine, were reported in 9 patients.

contraindications: Do not administer to patients with known tendency to drug-induced anemia, or give to them only under careful supervision. Not recommended for use during pregnancy.

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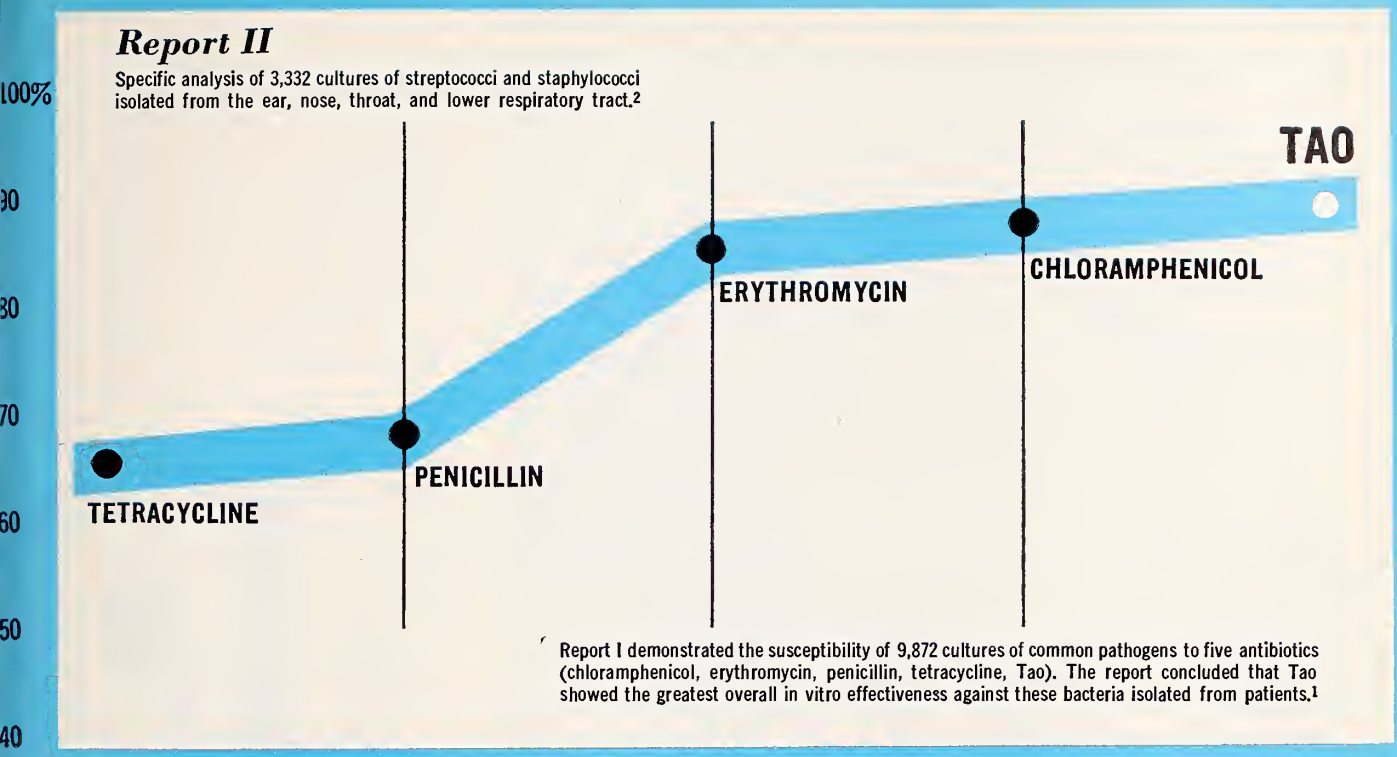
FROM A NATIONWIDE SURVEY OF 9,872 CULTURES OF COMMON PATHOGENS[1]

Conclusions of Nationwide Survey: *Report I*

1. **Even after five years of general use,** Tao, of the antibiotics tested, demonstrated greatest activity against respiratory streptococci and staphylococci (3,332 cultures).

2. **Overall results showed a higher percentage of susceptibility** among these common pathogens to Tao than to the other antibiotics. Susceptibility to Tao was greatest, not only in respiratory streptococci and staphylococci, but also in these organisms isolated from skin and soft tissue (3,423 cultures), genitourinary and gastrointestinal tracts and other sources (2,458 cultures). Susceptibility was equal to all antibiotics tested in pneumococci from unspecified sources (463 cultures), and less to Tao in H. influenzae from unspecified sources (196 cultures).

3. **Tao has been used for five years without development of predictable cross resistance.** In 1958 and 1961, approximately 73% and 70%, respectively, of erythromycin-resistant problem staphylococci showed susceptibility to Tao.[3,4] The present study confirms the continuing high degree of Tao activity even against these pathogens. Of 1,592 cultures of erythromycin-resistant staphylococci, 68% were susceptible to Tao, while in the reverse situation, only 33% of 768 Tao-resistant staphylococci were susceptible to erythromycin.



Report II

Results of Bacterial Susceptibility in 3,332 Respiratory Pathogens

References

1. "Bacterial Susceptibility Patterns: A Geographic Survey." Fowler, J. Ralph, M.D., and Watters, John L., M.D. Scientific Exhibit presented at the Annual Meeting of the American Society of Clinical Pathologists, Chicago, Ill., August 31 to September 9, 1962.
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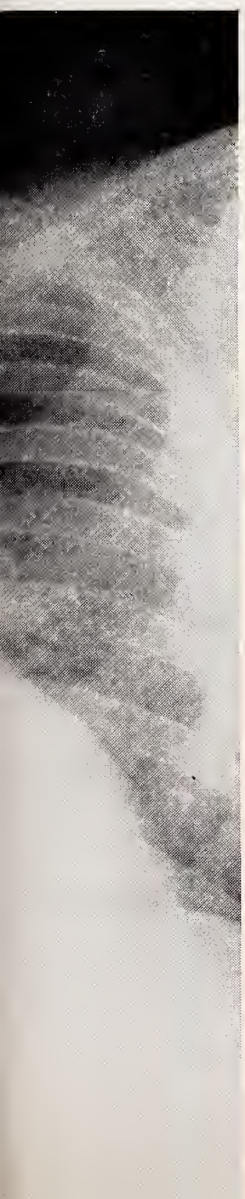
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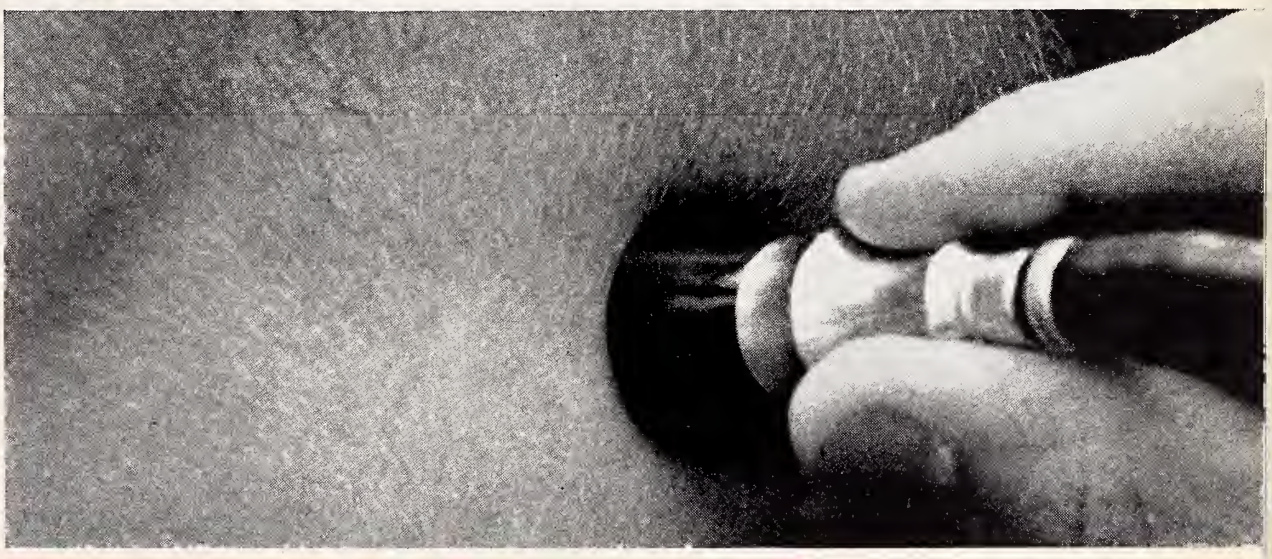
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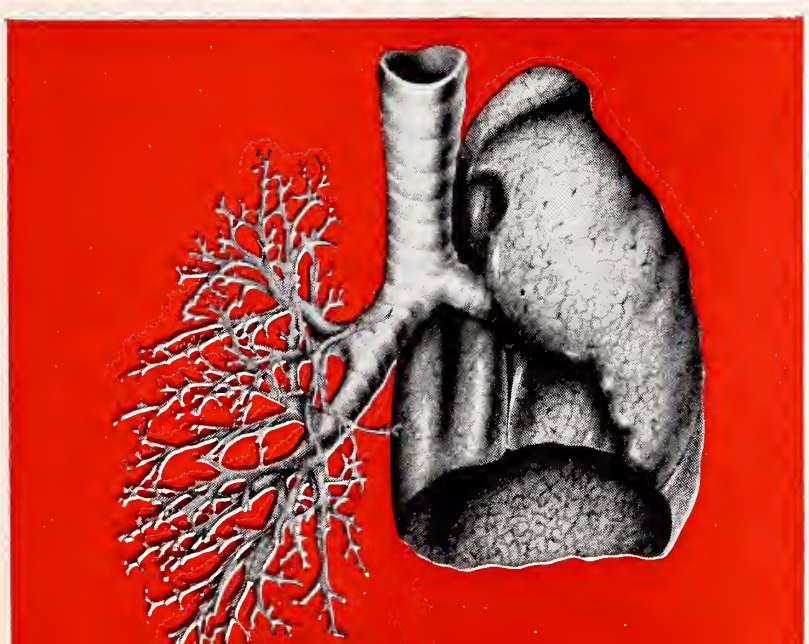
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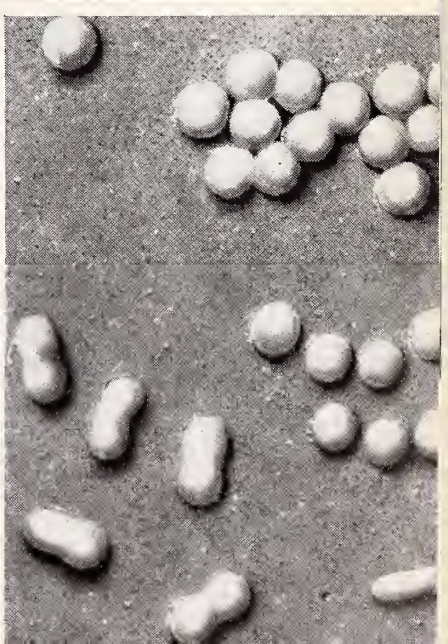
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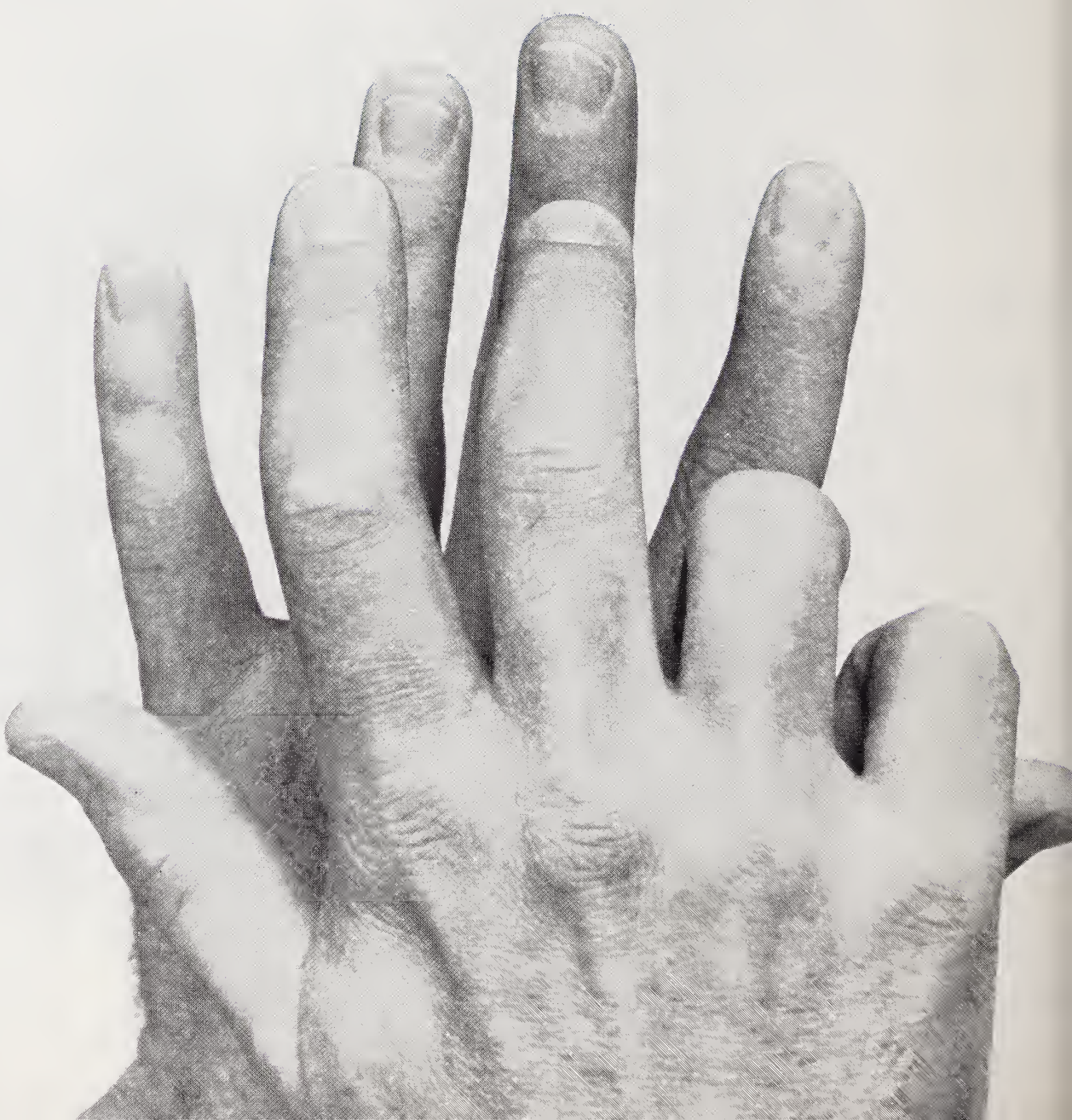
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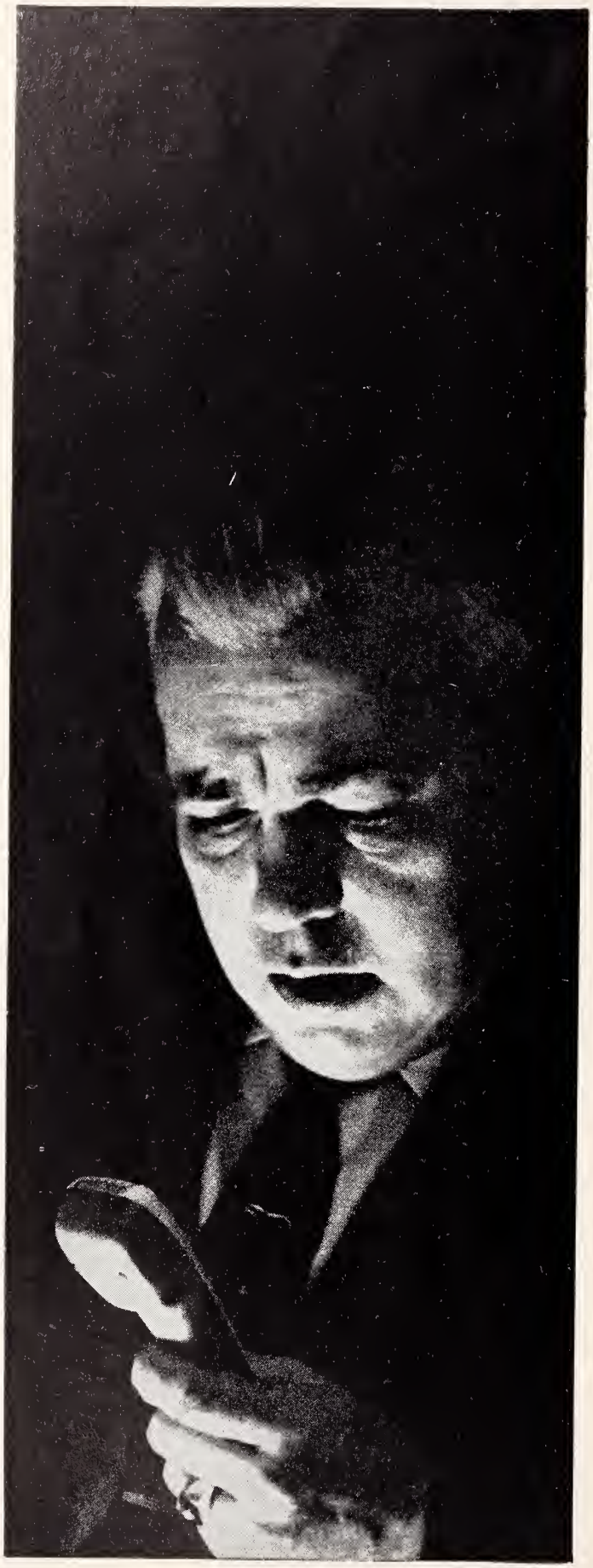
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President's Letter

We are all aware that there is widespread criticism, both by individuals and by groups such as unions, of what are termed the high costs of medical and hospital care and the consequent high premiums required for insurance to cover these expenses.

It is the writer's opinion that much of this criticism and unfavorable comment stems from the fact that the public is poorly informed about the various factors which make these costs necessary. It is highly desirable that this be corrected.

The patient should be informed not only of the physician's fee but also of any expense that will be incurred for services rendered by others. He should be told why laboratory and x-ray studies are felt to be necessary. If expensive drugs are prescribed the reasons for the use of such drugs should be explained to the patient.

If hospitalization is indicated the patient should be given a full explanation of the probable charges, including the additional charges for laboratory and x-ray studies, drugs, operating room fees, dressings, etc. An estimate of the total charges may be influenced by complications or other unforeseen expense, and the patient should be told of this.

Some may feel that hospital expense is the business of the hospital and not of the physician. However, the patient puts his trust in the physician, and when taking his advice on the necessity of hospitalization, the physician best retains the confidence of his patient when he fully explains all of these details. Too often a patient is told that his probable length of hospitalization will be so many days and that the charges for his room and board will be so much per day. He multiplies cost per day by length of stay only to receive a rude awakening when his bill is presented, showing the total two or three times the charge which he had anticipated. To a large extent this can be avoided by a full and frank discussion with the patient and, as a result, we retain the confidence of those who have intrusted their very lives to us.

I believe that the patient should be told not only the anticipated costs but the reasons for costs which he may believe excessive. He should be told that the provision of personnel services, — nurses, nursing assistants, clerical personnel, technologists, etc. — make up approximately 70% of the hospital expense and that the compensation paid to this group of employees, though not excessive, has risen markedly in the past two decades. The balance must cover costs of provisions, heat, utilities, procurement and maintenance of equipment, and maintenance of the physical plant. The cost of all of these services has likewise risen markedly.

I believe that hospitals would be well advised to publish a booklet or leaflet for patients and others giving full information about their operations. Such a publication should include:

(1) A statement describing the administrative and professional functions of the hospital.

(2) The composition of the governing board and its activities and responsibilities,

(3) Details of services which the hospital provides, including new services and new medical and surgical developments,

(4) The source of the hospital's income — from charges to patients — from gifts, from endowments and other sources.

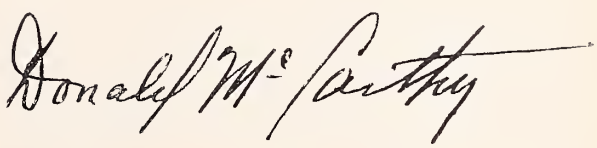
(5) Details of how income is spent.

(6) Current statistics of occupancy, income and outgo.

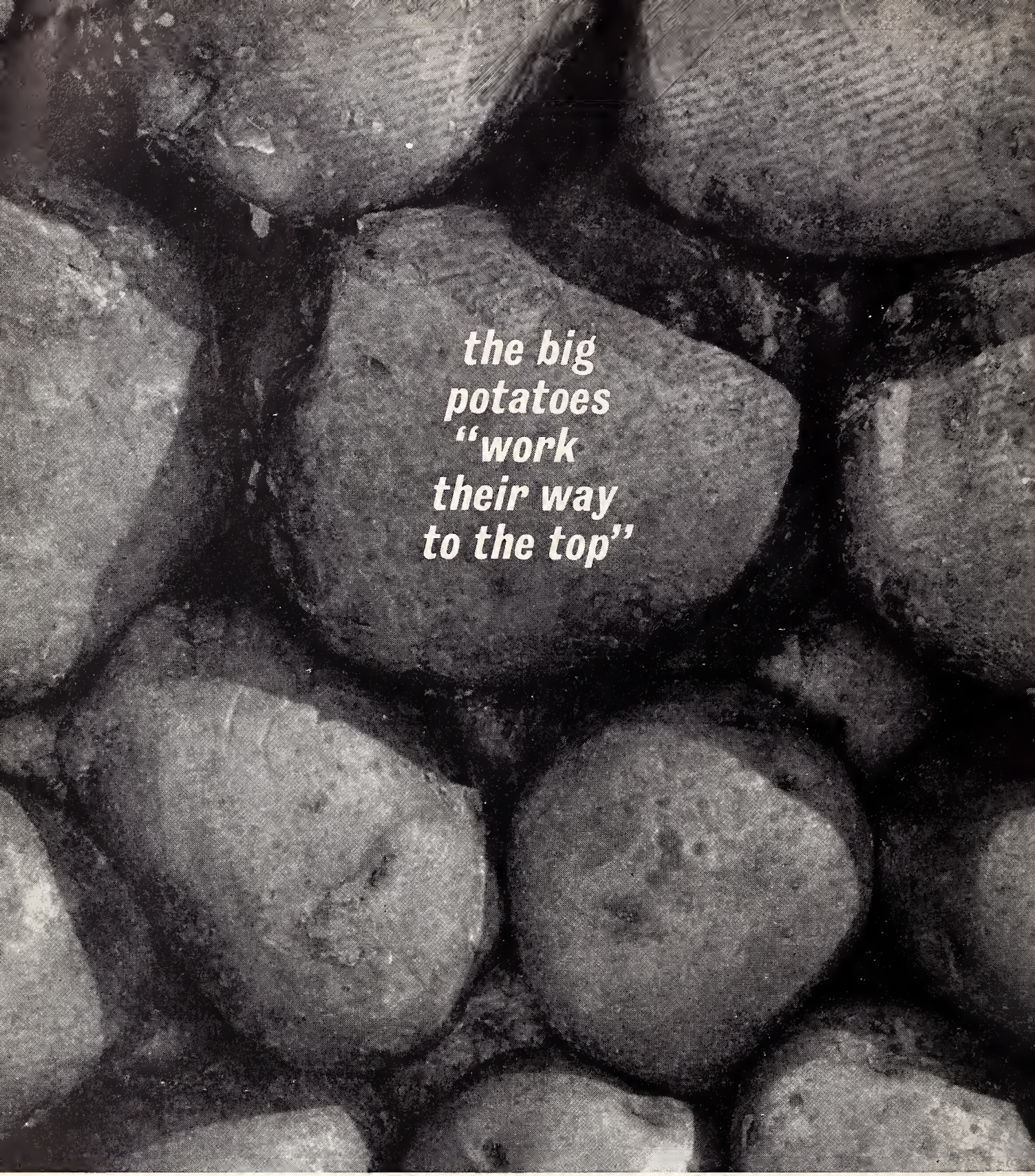
Insuring companies, including Blue Shield and Blue Cross, should likewise aid in providing factual information concerning hospital and medical costs, and in giving the widest possible circulation to the details of their own operations — what percentage of income is used to pay for services or claims, what percentage is required for administrative expense and for the provision of adequate reserves.

Salesmen should not give the buyer the impression that coverage is more adequate than is actually the case. When this occurs the patient feels that he has not received fair treatment and adds his voice to those who criticize.

In summary, criticism of high medical and hospital costs is usually based upon lack of information about the basic costs of these services. Providing the patient with factual information concerning the bases of such costs is the best, and in fact the only way, to meet these criticisms. This is the task of physicians, hospital authorities, and insurers.



Minnesota State Medical Association
President
Donald McCarthy, M.D.



Jostle a peck of potatoes long enough and the little ones will fall to the bottom; the big ones work their way to the top. So do the larger particles of an admixture of powdered chemicals. Unless steps are taken to keep particle sizes uniform, the active ingredients will not be evenly dispersed throughout an excipient. That is why Lilly pharmaceutical chemists establish precise specifications; maintain rigid controls. A few more steps are added and the cost is slightly increased, but priceless uniformity is assured in the finished product.

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• Isotopic
• Heart
• Homograft
• and
• Autograft

NORMAN E. SHUMWAY, M. D.*
RICHARD R. LOWER, M. D.*
EDWARD J. HURLEY, M. D.*
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Technically we are ready for transplantation of organs such as the heart. The author anticipates repair of the diseased heart outside the body followed by successful reimplantation. With control of the homograft rejection phenomenon the authors' experimental work indicates probable success in the homografting of mammalian hearts.

SINCE THE EARLY work of Alexis Carrel[1] the dream of surgeons has been to transplant successfully the heart of one animal to another of the same species. Except for a few abortive attempts by Bailey[2] and Webb[3] each investigator has capitulated to the problem by noting the effects of transplanting a puppy heart into the neck of a recipient animal. The experiment of Carrel, modified by Mann and his associates,[4] has been the standard for the study of cardiac homotransplants through the years. The longest survival of any heart transplant which actually supported the circulation, i.e., with the excision of the heart of the host animal, was 7½ hours;[3] the animal never regained consciousness. The present work, then, was initiated in a field where any observations from a successful experiment would be unique.

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*Authors are from the Department of Surgery, Stanford University School of Medicine.
Supported in part by Research Grant H-4658 of the National Heart Institute

Presented at the program for Observance of the 75th Anniversary of St. Mary's Hospital, Minneapolis, September 8, 1962

Homotransplantation Of The Heart

The principal obstacles to isotopic homotransplantation of the heart are: 1) the preservation of the heart graft during its extracorporeal phase, 2) the surgical technique, and 3) the homograft rejection mechanism. While we shall limit our discussion largely to the first two issues, a word about homograft rejection as it relates to these specific experiments is in order.

Homograft Rejection Mechanism

There is some evidence that a huge dose of transplantation antigen can combat the homograft rejection response with prolongation of graft survival. Since the heart mass is relatively large, we were interested in observing whether this antigen could neutralize the rejection forces. A further thought occurred to us with respect to the general problem of transplantation immunity: the whole heart graft is essentially nothing more than a muscle transplant with inherent blood supply and innervation. Kidney and skin are actually much more specialized tissues; a less complex tissue mass might possess weaker antigenicity. At any rate, there was no previous experience to dispel these hopeful hypotheses. Suffice it to say that no dog lived longer than 21 days, and each died of an acute myocarditis with a microscopic picture similar to that after transplantation of any tissue homograft.[5] Perhaps one striking observation was the fact that the timetable of rejection was less well delimited than that pertaining to skin and renal homografts, a point which offers an inviting area for future experiments.

Preservation of the Graft

Unlike skin and renal grafts, the heart requires special treatment during the period between excision from the donor and restoration of coronary circulation in the host. The concept of local hypothermia to the cardiac surface by immersion in cold saline solution was developed during previous, unrelated experiments[6] when it was found that the canine heart would recover uniformly from periods of one hour of myocardial anoxia if the heart were protected by local hypothermia. In the homotransplant work, the donor heart was removed from the heparinized animal and immediately immersed in a basin of normal saline solution at 0-5° C, the temperature of the myocardium being lowered below 10° C. through this simple expedient. Care was taken not to massage the heart during the period of saline immersion. In experiments where some form of coronary perfusion was combined with local hypothermia, there was important interstitial hemorrhage in the myocardium, which prevented cardiac resuscitation. In most of these experiments the heart was removed from the donor animal, placed in the cold saline for approximately 15-20 minutes, and then sutured into the host animal. The usual duration of cardiac anoxia was 1½ hours. In other experiments, the time limits of safe myocardial anoxia were explored, the longest period from which recovery was obtained being 7 hours.[7] Hearts could be defibrillated after 12 hours of anoxia; after 24 hours, even defibrillation of the ventricles was impossible. It is of course conceivable that 6-7 hours would be well within the range of practical cardiac homotransplantation.

Surgical Technique

The difficulties in the surgical method can be conveniently grouped under five headings: 1) multiple vascular anastomoses, 2) prevention of thrombosis, 3) maintenance of host circulation, 4) avoidance of irreversible cardiac anoxia, and 5) avoidance of air embolism.

The host animal is prepared by peripheral venous cannulation. The superior vena caval catheter is placed through the external jugular vein, and the inferior vena caval catheter is introduced through a femoral vein. The femoral artery is cannulated for return of blood from the artificial heart-lung apparatus. The contralateral femoral artery and vein are catheterized to monitor pressures. A left thoracotomy is developed through the 4th intercostal space. The heart of the host animal is excised after a noncrushing clamp is placed through the transverse sinus, occluding both the main pulmonary artery and the aorta. Multiple venous anastomoses are dispensed with by leaving a rim of right atrium, atrial septum, and left atrium in place. (Figure 1) The aorta and pulmonary artery are divided immediately above their respective valves. After the heart has been removed from the host, the donor heart is excised from a heparinized animal in precisely the same manner.

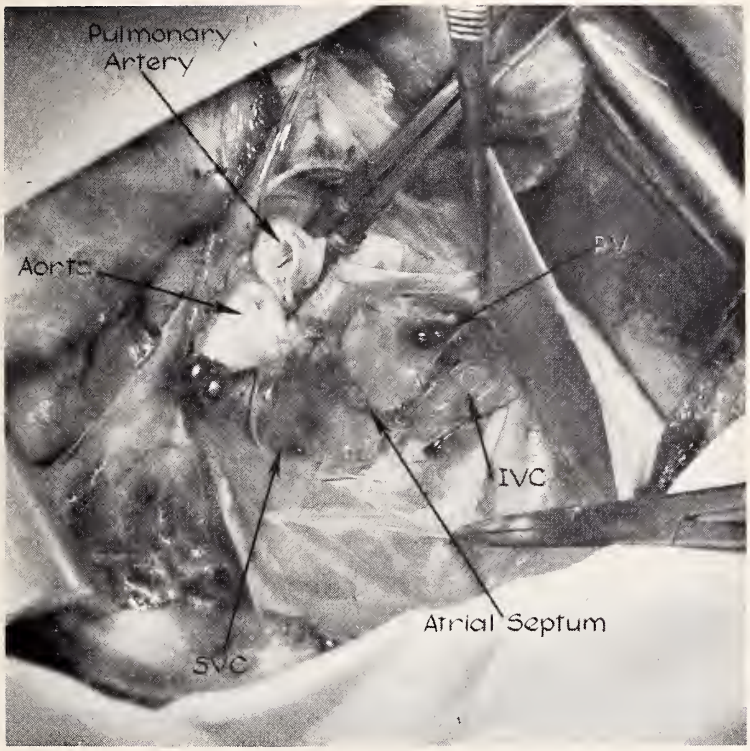


Figure 1 shows the remaining portions of the right atrium, the atrial septum, and the left atrium as well as the pulmonary artery and the aorta after excision of the heart and before replacement of the cardiac homograft or autograft.

After a period of time in cold saline solution, the donor heart is sutured into the host animal by a continuous over-and-over suture of the atria, the atrial septum, and the aorta and pulmonary arteries. Before the aortic anastomosis is completed, the heart is allowed to fill with blood from the bronchial circulation to expel all air from the cardiac cavities. The left side of the heart is then decompressed by a left atrial catheter, which drains the bronchial return by gravity into the venous reservoir. Upon removal of the clamp from the transverse sinus, venticular fibrillation invariably develops, and as the duration of coronary perfusion reaches 10-15 minutes, it is possible to defibrillate the heart by electric shock. The new heart is supported by the extracorporeal circulatory system for another 10-15 minutes. At this point the animal is weaned from the artificial heart-lung machine by increments. It is sometimes necessary to support the heart with a slow drip of 2 mgm. of levarterenol in 300 ml. of saline solution. Polybrene is given slightly in excess of the original heparin dosage. The animal is observed for venous and arterial pressures until such time in the postoperative course as his state of consciousness makes it imperative to remove these respective cannulae. The chest tube of siliconized rubber is also removed at this point. The vasopressor is slowly diminished until the animal supports his systemic blood pressure without aid. Digitalis was not used in any of these experiments.

The next morning the animal is walking and able to drink water. Penicillin and streptomycin are administered each day through the first week of the postoperative course. The dog appears entirely normal until the onset of myocarditis, from which death occurs within 24 hours. Autopsy examination of the heart reveals enlargement of the ventricles with edema and interstitial hemorrhage. Microscopic section shows acute necrosis and dense infiltration with plasma cells and large mononuclear elements. The regional lymph nodes are large and succulent. Death results from the 7th to the 21st postoperative day; 10-12 days is the mean survival period. No dog was pretreated in any way to modify the natural course of homograft rejection. The dogs were matched only with respect to size. After an initial high mortality, a satisfactory preparation can be expected in 75-80% of all experiments. Certainly as important as surgical craftsmanship is the conduct of the perfusion. The principles of extracorporeal circulation which we consider essential have been documented.[8]

In later experiments two sets of red cell chimeras prepared by superlethal irradiation and bone marrow transfusions, were operated upon unsuccessfully.* The insoluble problem in these animals was a disparity in size; the donor animal was nearly twice as large as the intended host, and the heart transplant could not be accommodated without left pneumonectomy. We shall soon have available matched sets of dogs with red cell chimerism for continued exploration of the whole heart homograft in specially prepared animals.

Autotransplantation of the Heart

Since no dog in the homograft series lived longer than three weeks, we had available no survivors for the study of the long-term physiological effects of heart transplantation. Numerous investigators have prepared animals "in anticipation of the management of the transplanted heart"[9] by external denervation in an effort to ascertain if the heart is truly dependent on its extrinsic nerve supply. We believe that a more faithful replica of the long-term cardiac homograft is the autotransplant, because denervation is unequivocally complete and the graft has recovered from the same anoxic period and surgical manipulation essential to a successful homotransplant. Quite apart from the issue of transplantation is the more imminent and practical consideration that many cardiac diseases, which are currently inoperable, might be better treated by excising the heart, performing surgical correction leisurely in a quiet, dry field, and then replanting the heart in the chest. This might be termed extracorporeal surgery of the heart.[10] Some confidence in this thesis was inspired by the fact that resuscitation of the canine heart was possible after 3-7 hours of anoxia. It seemed that the artificial heart-lung machine was more restrictive in extracorporeal surgery than the reaction of the heart to prolonged periods of anoxia. Local cardiac hypothermia was indispensable to the success of retrieve after these sustained intervals of anoxia.

* Generously provided by J. W. Ferrebee, of the Mary Imogene Bassett Hospital, Cooperstown, New York.

Technical Precautions

The surgical method relevant to cardiac autotransplantation varies but little from that described above. Tissue cuffs are more limited, and the aortic suture line is a significant technical challenge. A compressed Ivalon vest is utilized to reinforce the aortic anastomosis. Sutures in the atrial septum must be shallow yet hemostatic to avoid important injuries to the conduction system.

Results

Early in this experimentation, many dogs died of aortic hemorrhage or complete heart block. Presently 80% of all procedures yield animals capable of carrying the circulatory burden after cessation of pump-oxygenator support.

Some four dogs are now living and well one year or longer after operation. Such physiological measurements as cardiac output, responses to exercise, isoproterenol, and epinephrine are normal. The heart of one animal is in atrial fibrillation, but all others are in sinus rhythm. Further studies are planned.

Minimally altered, physiologically sound hemodynamics are observed in the precise replica of the cardiac homograft. The fact that the heart can be excised and replaced yields more than a preview of the homovital heart transplant; it demands that consideration be given to the unexplored possibility that certain cardiac diseases, now inoperable, would be amenable to correction during extracorporeal displacement of the heart.

Summary

Long-term observations, impossible in the isotopic cardiac homograft, were carried out in dogs with autotransplantation of the heart. It is concluded that extrinsic innervation of the heart is not essential to its physiological adaptations.

The fact that the heart can be excised and replaced suggests the concept of extracorporeal surgery for presently inoperable cardiac states.

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WHAT'S YOUR DIAGNOSIS?

A man 76 years of age entered the hospital on December 27 suffering severe pain in the abdomen. The pain had its onset about 24 hours prior to admission; at first intermittent sharp stabbing pains, then becoming progressively worse and almost constant. There had been no vomiting, no nausea.

The history indicated that he was taking quinidine for a cardiac irregularity. He had had no dicumerol for 2 years.

Despite his subjective complaints, his general appearance did not indicate that he was seriously ill.

The physical examination revealed that he was wearing upper and lower dentures. There was no cardiac irregularity. Blood pressure was 140/90. Breath sounds were normal.

The abdomen revealed 4+ tenderness and rebound tenderness throughout all areas of the abdomen, with a fraction more on the right than on the left. There was minimum spasm and muscle guard. The abdomen was not rigid. One half hour after administering a quarter grain of morphine, the physical findings in the abdomen were a bit more localized on the right side than on the left.

X-ray of the abdomen revealed gallstones. There were a "few phleboliths, and a faint shadow near the fourth left transverse process not typical of vascular plaque nor of ureteral calculae though this cannot be excluded."

Temperature was normal. White count was 9,500. Differential normal. Urine negative. No pus cells. No red blood cells.

After observing the man for two hours there were no appreciable changes in the symptoms or findings, except for more localization on the right side. The severe subjective pain in the abdomen persisted. A laporatomy was done.

What's Your Diagnosis? Turn to page 240.

NUGGETS OF THE SOUL

What we need as a national policy in America is a readiness to understand one another, to have regard for one another, to be tolerant of one another, to be helpful to one another.

It is not gifts of money that regenerate the human spirit, but gifts of time, of energy, of oneself—gifts that mean a sharing with one's fellow man the precious gold of an honest heart. These are the nuggets that are embedded in the soul.—David Lawrence.

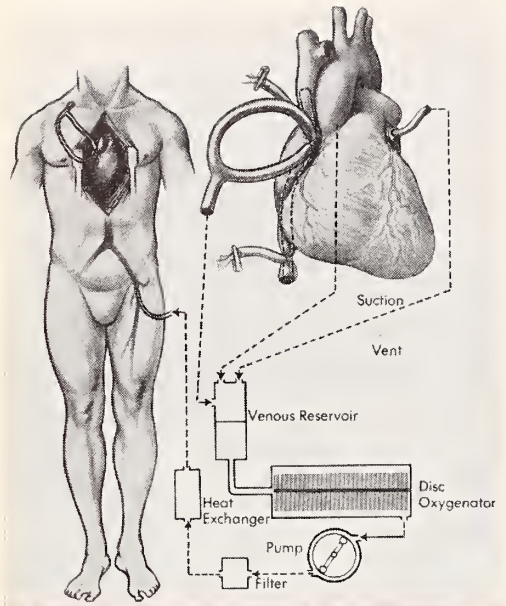


Figure 1. Schematic arrangement of cardiopulmonary bypass with hypothermic perfusion.

Open Heart Surgery: Development of

By September, 1962, open-heart surgery using extracorporeal circulation was performed on 83 patients with congenital and acquired heart lesions. Thirty-six of these cases were operated on at St. Mary's Hospital, Minneapolis, in a two-year period. On this 75th Anniversary these cases are analyzed and the growth of cardiac surgery at this institution is presented.

Development of cardiac surgery at St. Mary's Hospital, Minneapolis, began in January, 1944, when Kinsella[1] closed a patent ductus arteriosus which had been complicated by bacterial endocarditis. Subsequently other extracardiac lesions, as coarctation of the aorta and vascular rings of the thorax, as well as mitral stenosis and constrictive pericarditis were successfully operated. Shunt procedures were done for cyanotic forms of heart disease, as tetralogy of Fallot. Thus, Gross' historic operation and milestone, ligation of the patent ductus arteriosus in 1938,[2] Blalock's "blue baby" operation in 1944,[3] and Bailey's mitral commissurotomy in 1948,[4] paved the way to the closed surgical treatment of congenital and acquired heart disease in Minneapolis operating theatres.

*Presented at the 75th Anniversary, St. Mary's Hospital, Minneapolis, Minnesota, September 8, 1962.

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M. F. LYNCH, M.D.
Minneapolis, Minn.

a Program and Analysis of Operated Cases

The development of open-heart surgery was more complex since multiple disciplines and detailed organization were necessary, as follows:

Diagnostic Laboratory

First, a diagnostic cardiac catheterization laboratory had to be established. Although such had been proposed for this institution as early as 1950, one was not forthcoming until September, 1959. Modern equipment is now available for complete diagnostic studies, such as right and left-heart catheterization, intracardiac shunt detection, angiography and aortography. These procedures are done by the cardiologists and radiologists.

Surgical Research Laboratory

A surgical research laboratory is a necessary component in an open-heart surgical program. During a preclinical phase, pump-oxygenator equipment was tested. Nursing and technical personnel were familiarized with new surgical methods attendant on this type of surgery. These features were learned while basic research in special cardiovascular problems was in progress. Financial support for projects was made available by grants from the United States Public Health Service, Minnesota Heart Association, Cardiac Research Committee of Minneapolis and the Marian Research Foundation of Minneapolis.

Surgical laboratory facilities were generously made available to us by St. Joseph's Hospital, St. Paul. Currently, plans are in progress for another research facility at this institution.

Blood Procurement and Preparation

Arrangements were made with the War Memorial Blood Bank, Minneapolis, for the special collection and preparation of heparinized blood in advance of open-heart surgery.[5] Donor assignments, specialized matching and intermatching of blood are carried out by the blood bank. This has proved to be very satisfactory and no significant problems have arisen.

Selection of Cases

All surgical candidates are presented to a combined medical, surgical, radiologic conference for discussion. Decisions regarding management and surgical intervention are reached at this level. In general, surgery is recommended when there is evidence of significant progression of heart disease as manifested by 1) symptomatology, 2) cardiac enlargement, 3) abnormal electrocardiogram, and 4) altered hemodynamics by catherization.

Perfusion Method

The equipment for extracorporeal circulation consists of a gravity trap, a disc oxygenator, occlusive roller pumps for arterial perfusion, a heat exchanger and a filter which also serves as a bubble trap (Fig. 1). Linking of the patient to the extracorporeal circulation is accomplished with plastic (tygon) tubing and stainless steel adaptors. All parts can be autoclaved.

Plastic cannulae of varying sizes are introduced into the vena cava through the right atrium and blood is removed by gravity drainage. Following circulation through the oxygenator, blood is returned to the patient through a plastic cannula in the left common femoral artery. Characteristic features of the disc oxygenator have been previously described.[6] The size of oxygenator and priming volume are varied according to the size of the patient and estimated flow requirements. The gas mixture supplied to the oxygenator is 98 per cent oxygen and 2 per cent carbon dioxide.

Priming is accomplished with heparinized blood, 25 mg. to each 500 cc., usually drawn the day preceding surgery, and dextran. [7, 8] Hypothermia produced by the Brown-Harrison heat exchanger may be moderate or profound with or without circulatory arrest depending on the nature and complexity of the surgical problem.

The heart is now generally exposed through a median sternotomy. In certain instances a transverse sternotomy is advantageous. Mitral valve lesions are managed with left or right thoracotomy. General exploration for associated lesions is made and the diagnosis confirmed when practical by digital exploration. Pressure recordings may be done at this stage and postoperatively. The aorta and venae cavae are isolated and encircled with umbilical tape within the pericardium. Heparin 1.5-3.0 mg. per kg. of body weight is injected into the right atrium. Arterial and then venous cannulations are completed with tubes of appropriate size, and connections are made to the extracorporeal circulation. Left atrial venting is used frequently. Partial cardiac bypass is started with flows approximately 50 per cent of estimated requirement at normothermic levels (2.2-2.4 liters/M^2S.A.). At nasopharyngeal temperatures 29-31° C. total cardiac bypass is performed. Ventricular fibrillation usually occurs at this level of temperature. When cardiac arrest is purposely performed local cooling is used. Coronary perfusion is used for aortic valve lesions. Different aspects of the perfusion techniques and hypothermia have previously been described, [9-22] and certain of the principles reported have been applied in our method. Excellent reviews on hypothermia have been recently reported.[23, 24, 25]

Monitoring During Cardiac Bypass

As a guide to increase the safety of total body perfusion during cardiopulmonary bypass, a number of physiologic parameters were monitored. These included arterial blood pressure, venous

pressure, arterial flow, electrocardiogram, electroencephalogram, arterial and venous oxygen saturations, arterial ph and nasopharyngeal temperature. The data from several typical cases are shown in Figs. 2, 3, 4.

Postoperative Care

Following discharge from the operating room, patients were sent to the intensive care unit. Trained nursing personnel were essentially unchanging in this unit and, accordingly, were familiar with the special problems in the postoperative period. Balance sheets were employed for hourly recording of vital signs, of fluid and blood losses and replacements. Oxygen and humidity were provided usually by tent. The use of digitalis was individualized and not used routinely. Body temperature was usually controlled by a hypothermia blanket for 24-48 hours. Sedation and analgesia were controlled with demerol and morphine. Clear liquids were usually allowed by mouth in 24-48 hours. The uncomplicated case was usually out of bed in three to four days and discharged in 10 to 14 days from date of surgery.

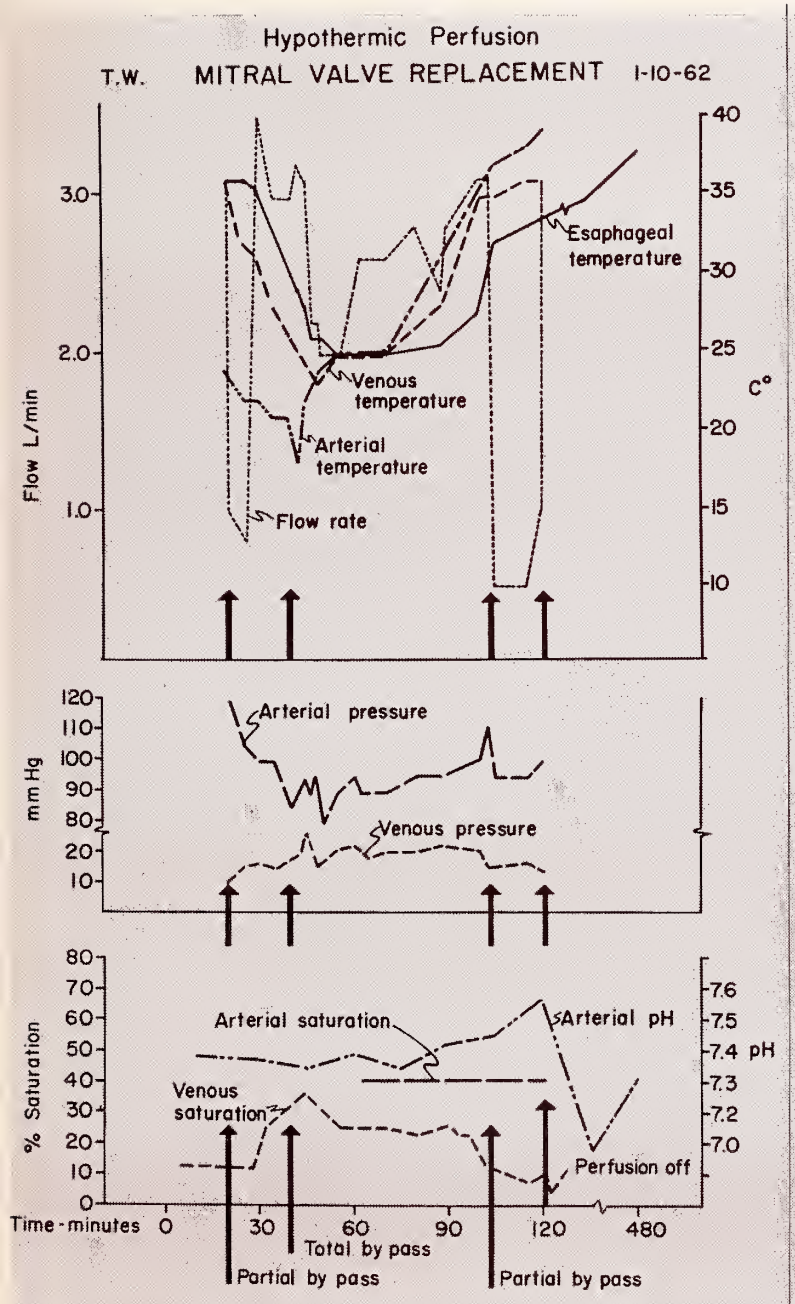


Figure 2

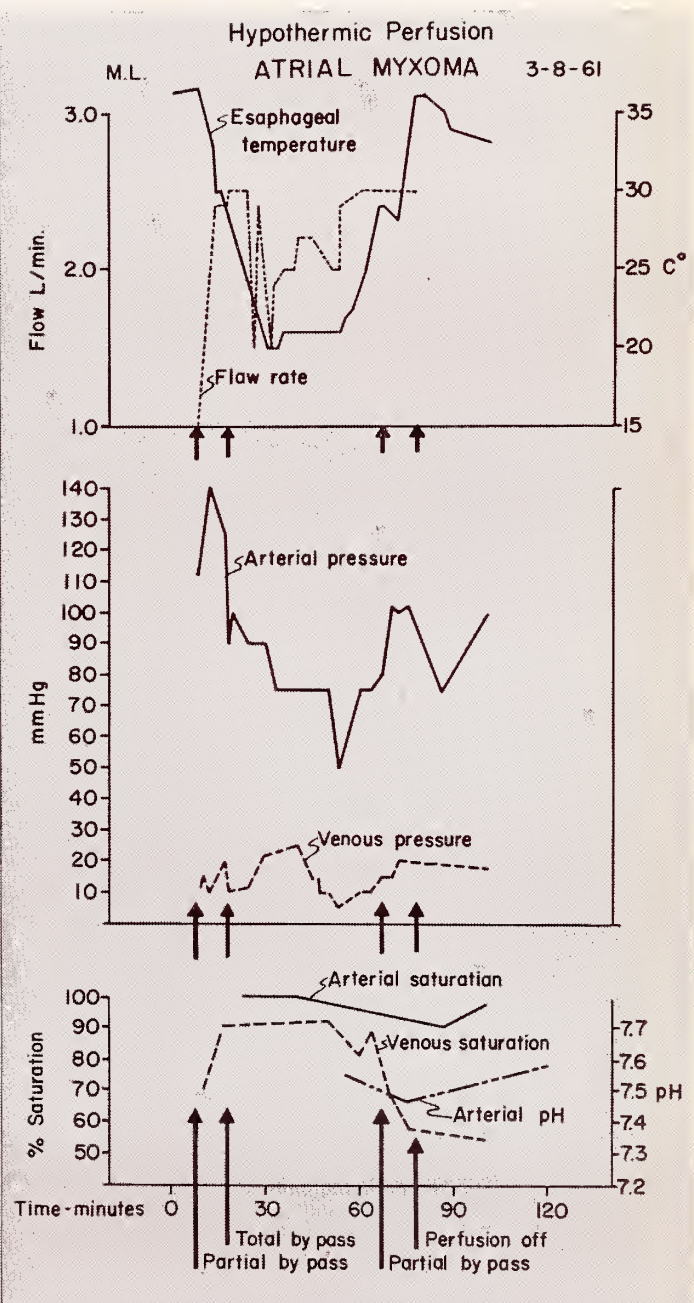


Figure 3

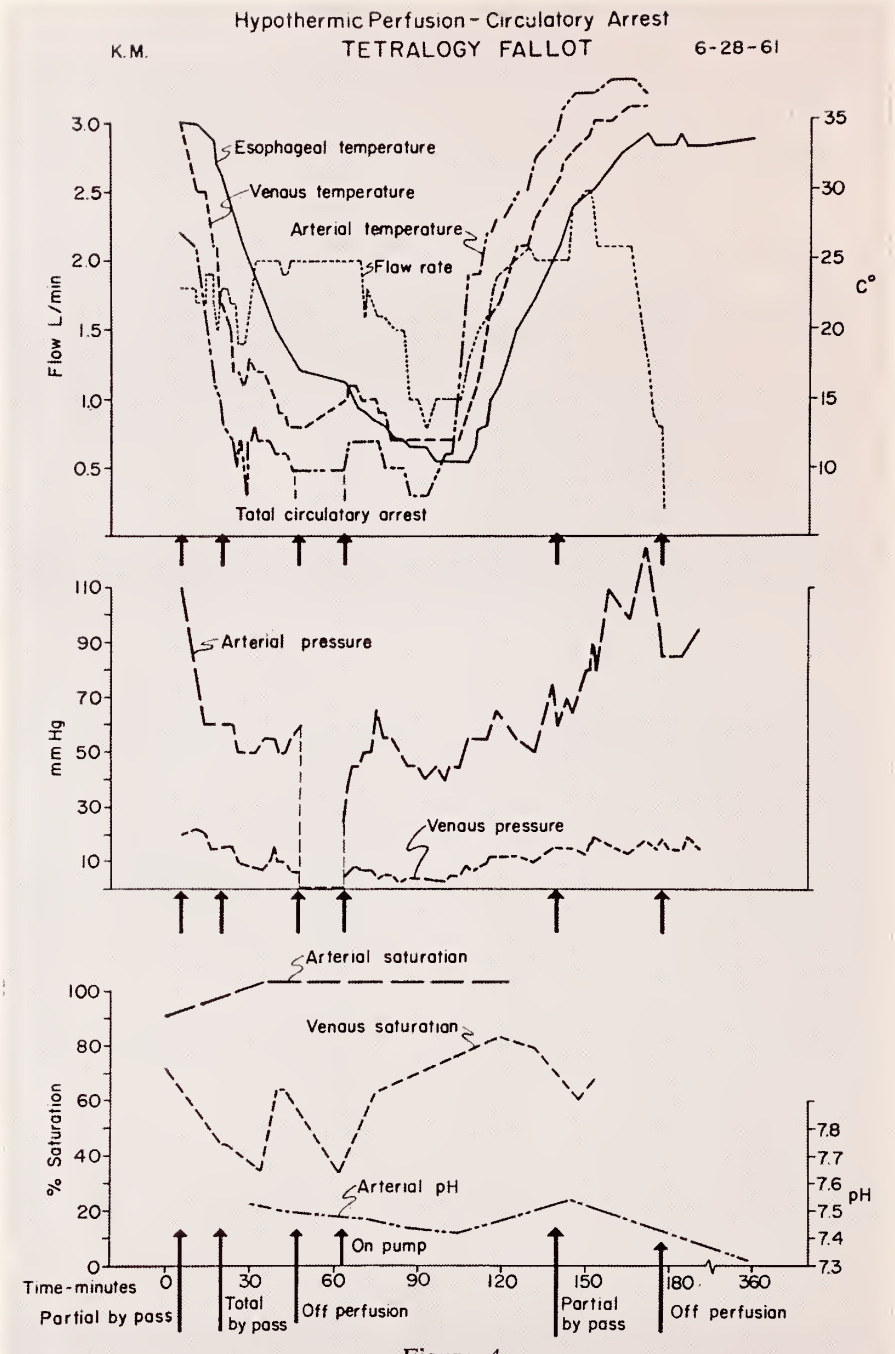


Figure 4

Results

Eighty-three patients have undergone open-heart surgery with the use of extracorporeal circulation and a pump oxygenator. On this 75th Anniversary of St. Mary's Hospital, Minneapolis, those cases that have been operated at this institution are analyzed. (Fig. 5). Thirty-six cases were operated at this hospital from July 6, 1960 through September 1, 1962. Both congenital and

FIGURE 5
OPEN-HEART SURGERY

*St. Mary's Hospital	36
Other hospitals	47
Total cases	83

*July 6, 1960 - Sept. 1, 1962

acquired heart lesions were encountered and these different conditions are shown in Fig. 6. Operative mortality is shown in Fig. 7. In 22 cases

FIGURE 6
OPEN-HEART SURGERY

Condition	No. Cases
Atrial septal defect (anomalous venous return-2)	12
Ventricular septal defect	2
Pulmonic stenosis	1
Tetralogy Fallot	4
Atrial myxoma	1
Aortic valve disease	4
Mitral valve disease	7
Combined aortic and mitral disease	4
Atrial thrombosis	3
Outflow patchaneurysm	1

of congenital heart disease there were three deaths. From August, 1960 through May, 1961 seven patients underwent surgery for acquired

FIGURE 7
OPEN-HEART SURGERY

	No.	Operative Mortality
Congenital heart disease	22	3
Acquired heart disease		
Aug. 1960 - May 1961	7	5
Jan. 1962 - Aug. 1962	7	2
TOTAL	36	10

FIGURE 8
OPEN-HEART SURGERY

Congenital heart disease	Number	Operative Mortality
	22	3

Age	Diagnosis	Cause of Death
1. 27 Mos.	V. S. D.	Severe pulm. Hypertension
2. 7 Yrs.	Tetralogy	Acidosis-low output
3. 3 Yrs.	V. S. D.	Heart Block

heart disease. Five died. For the succeeding six months open-heart surgery for acquired valve lesions was discontinued but resumed in January, 1962. So far this year seven cases have been operated on with two deaths. Analysis of the causes of death is shown in Figs. 9 and 10. For the most part the cause of death in acquired valve disease was due to failure of the valvuloplasty and prosthetic substitution. Four of the seven deaths in this group had combined aortic and mitral valve disease. Comparable experiences have been reported by others.

Discussion

Open-heart surgery has become well established in the last decade. Initially, closed or blind techniques and then hypothermia were employed to treat intracardiac lesions. At present the use of extracorporeal circulation with a pump-oxygenator system has become the method of choice. Hypothermia in conjunction with extracorporeal circulation has been used by many to slow the rate of metabolic processes and thus increase the safety of total body perfusion.

The rapid progress in cardiac surgery has been due to the contributions of many individuals and groups of individuals who have carefully and accurately reported investigative and clinical experiences. It is not within the scope of this presentation to discuss the early developments in cardiopulmonary bypass and extracorporeal pump oxygenators. Excellent reports and reviews are available.[26-34]

Although variations in pump oxygenator systems and techniques still prevail, those widely used have achieved excellent results. Refinements will continue and cardiopulmonary bypass techniques will find broader application in surgical practice.

Summary for Open-Heart Surgery

In order to carry out proper cardiac surgery, a complete diagnostic cardiac catheterization laboratory is necessary, and these determinations are carried out by the cardiologist and the radiologist. Heparinized blood is obtained from the Memorial Blood Bank and the selection of cases

FIGURE 9
OPEN-HEART SURGERY

Acquired Heart Disease	Number	Operative Mortality
	14	7

Age	Diagnosis	Cause of death
1. 19	A. I.	Cardiac Arrest-thoracotomy Cusp replacement
2. 7	A. I., M. I.	Mitral valvuloplasty Cardiac failure
3. 22	M. I.	Valvuloplasty Cardiac failure
4. 39	A. I., M. I.	Mitral valvuloplasty Cardiac failure
5. 62	A. I.	Cusp replacement Coronary disease
6. 53	A. I., M. I.	Mitral replacement Cardiac failure
7. 32	A. I., M. I.	Aortic replacement cardiac failure

FIGURE 10
OPEN-HEART SURGERY
Complications

1. Pneumothorax	1
2. Wound infection	1
3. Septicemia	1
4. Bleeding	2
5. Recurrent V. S. D. (Tetralogy)	2
6. Congestive failure	1
7. Confusional state	2
8. Aneurysm out-flow patch	1

is presented to a combined medical-surgical radiologic conference for discussion where the decisions regarding the management of the patients were made. There were no operative deaths directly attributable to the perfusion technique in this group. Mortality was associated with the severity of the underlying cardiac disease. This was especially true in the acquired forms of valvular heart disease in which multiple valves may be involved. With improved surgical techniques it is anticipated that the results in acquired forms of heart disease will approach the excellent results that can be achieved with many forms of congenital heart disease.

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*References 14-34 will appear in the reprint or can be obtained from the author.

ANSWER TO WHAT'S YOUR DIAGNOSIS

(From page 233)

There was a 2-cm. jagged, sharp turkey bone perforating the distal jejunum. It had caused an area 8 cm. long of regional jejunitis. There was no generalized peritonitis. There was a small area of local fibrinous exudate at the site of the jejunal injury. The man wore dentures and was not aware of having swallowed a turkey bone which he had eaten on Christmas Day. The bone was removed through a small incision in the jejunum and the defect closed. Recovery was uneventful.

If all the world is wrong — reform yourself.—C.O.R.

STRESS FACTORS in Heart Disease

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ENGEL DEFINES a stressful stimulus as "any process or stimulus which causes the organism to make an adjustment to maintain homeostasis."[1] Thaler says: "What constitutes stress at one time and under certain circumstances to a person may at other times, places and circumstances not be stressful. The perception and interpretation by the person, the symbolic meanings the various stresses have for him at the moment, determine the meaning and strength of the stresses . . . In certain studies obvious stress may appear uniform, for example, facing surgery, making a parachute jump, extreme sleep deprivation. Yet while the major stress appears the same, each person has his individual way of reacting to it . . ."[2] *Stress,* in the sense I am using it in this paper, is limited to stress of emotional origin, whether the emotion is engendered by internal conflicts and affects, or by external circumstances.

The theme of this paper is that stress factors should be taken into account by the clinician in the management of all types of heart disease from congenital malformations to the so-called "neurocirculatory asthenia." The degree and significance of the stress factor vary greatly in different patients and in different conditions: organic, "psychosomatic", or psycho-physiological.

Organic Conditions

Congestive heart failure and mitral commissurotomy represent the structural end of the spectrum. Vernon et al.[3] studied 30 patients with congestive heart failure. They found that in 19 cases stress played a direct role, and in 14 cases

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an indirect role in precipitating decompensation in patients who already had impaired cardiac reserve. They differentiated between direct causes —intrafamilial or interpersonal conflict, unresolved grief, and the like—and indirect causes, which usually stemmed from a denial of illness and were manifested as failure to take medication, as overexertion, and as other sequelae of denial. In nine patients both indirect and direct causes were present, and in only five was neither present.

Chambers and Reiser[4] found that emotional factors played a major precipitating role in 19 of 25 consecutive patients admitted to the Cincinnati General Hospital with cardiac decompensation.

In neither study was there a characteristic personality pattern or type of emotional stress consistently present among cardiac patients. Thus, only by evaluation and then, if necessary, by proper management of the individual patient's emotional problem or problems can the physician help to forestall decompensation by reducing the stress factor.

Psychosomatic Factors

Hickam et al.[5] in 1948 warned that anxiety, however defined by the patient, may precipitate pulmonary edema in patients with heart failure. In another part of their study they pointed out that the same general type of anxiety (threat of failure to medical students) produced variable responses among their student group: 1) a response essentially analogous to sympathetic stimulation; 2) a response essentially analogous to vagal stimulation; and 3) little, if any response. This result is hardly surprising in view of the common observation that some angry people become pale, others become red, and still others do not seem to have a vascular response of any kind to anger. The study indicates that not only must the physician consider the specific individual nature of emotional stress, but he should assess the specific individual response of the circulatory system to stress when he attempts to develop a comprehensive management of all factors in the cardiac patient.

The Stress of Prospective Health

A third variable to be considered in the assessment of stress factors is the meaning of heart disease to the patient. The significance of this variable has been demonstrated by Kaplan[6] and Fox et al.[7] in their studies of the emotional responses of patients undergoing mitral commissurotomy and other cardiac surgery. They emphasized the multiplicity of meanings that heart disease may have, and pointed out that for some individuals, long accustomed to the secondary gains of invalidism, the emotional stress of prospective health is considerably greater than the stress of continued invalidism.

Coronary Artery Disease

To what extent, if any, coronary artery disease fits into the category of so-called psychosomatic disturbances is still a question. Arlow[8] has presented evidence to substantiate the belief of Dunbar[9] and others that there is a specific personality associated with other factors in determining susceptibility to coronary disease. On the other hand, Miles et al.[10] did not find much difference between their coronary and control subjects, as far as pre-existing personality was concerned.

As for precipitating factors, Weiss et al.[11] found that there had been definite emotional stress immediately before the onset of the attack in 37% of their cases compared to 9% of a control group. They found histories of gradually increasing levels of tension in many patients before the coronary attack. The nature of the tension varied, but the difference between coronary patients and matched controls was significant; for example, twice as many coronary patients as controls reported sexual problems immediately antedating the onset of the illness. Dreyfuss[12] found that stress was a precipitant in 55% of his coronary patients, particularly in the younger age groups. While these studies do not prove that emotional problems represent a basic cause of coronary disease, they strongly suggest that emotions contribute to the timing of the attack. Two recent papers[13] which indicate that cholesterol levels increase with emotional stress suggest that there may be a relationship between emotional and dietary factors in coronary disease.

Physicians generally agree that stress is a factor to be avoided if possible after the coronary

attack. However, avoidance of stress is more easily prescribed than achieved: Jarvinen,[14] for example, has pointed out that the effects of such a presumably innocuous procedure as ward rounds may be lethal to the coronary patient. The physician is frequently in the position of warding off one kind of stress by producing another kind; the encouragement of rest by the threat of death is an example.

Psycho-Physiologic Factors

Not only the prescription but the prescriber can be stressful. Reiser et al.[15] have shown that the relationship between experimenter and subject so affects the meaning of an experimental situation to the subject that different psychological and physiological mechanisms of cardiac response (as measured by the ballistocardiograph, the electrocardiograph, heart rate, blood pressure, and so on) are evoked by identical test procedures.

Electrocardiographic Changes

The effects of stress on cardiac rate and rhythm were demonstrated by Duncan, Stevenson, and Ripley,[16] who provoked paroxysmal auricular and nodal tachycardia, and auricular fibrillation by eliciting artificial psychological stress situations. Not all patients responded in this way to the stress situation, but the arrhythmias occurred with equal frequency in patients with and in patients without structural heart disease. Berman et al.,[17] using hypnotically-induced psychological stress, brought about electrocardiographic changes, particularly evident in the T waves, in 50% of their subjects.

Heart Consciousness

The palpitations and heart consciousness of the the so-called "cardiac neurotic," therefore, have their origin in the physiological response to stress, and the patient with this type of symptom needs the physician's assistance in directing his attention to his life situation rather than to his electrocardiogram. However, although the physician may aggravate a pre-existing "cardiac neurosis" by ill-advised and premature focus on functional murmurs and other innocuous symptoms, Wheeler et al.[18] found no evidence that he creates the symptoms of "iatrogenic heart disease" in otherwise normal individuals.

Denial

In contrast to the patient who believes he has heart disease when he does not is the patient who denies illness that he has. To bring this patient from denial to the acceptance of illness necessitating a treatment regimen usually requires that the physician understand the specific meaning of the disease to that particular patient. Does he fail to follow physician's orders because he does not know how serious is his condition, or because he believes it is so serious that he cannot bear to acknowledge its existence? Is he more afraid of death or of helplessness? Lendrum and Kobrin[19] discovered that of a hundred discharged children who had had rheumatic fever and for whom continued treatment had been prescribed, only 33 were taking their medicine. To understand why one patient takes his medicine and two do not and to predict and prevent the failure of patients to follow therapeutic regimens, the physician must understand the specific stresses which encourage denial or acceptance of illness and treatment in each individual patient.

Summary

Stress factors are significant, in one way or another, in all types of heart disease. The physician, therefore, should search for possible sources of stress in all his patients. In order to do full justice to them, he cannot avoid the time that it takes to learn the individual significance of emotional stress to that particular patient, to clarify that patient's specific cardiovascular response to stress, to understand the stressful implications of the specifics of the relationship between that patient and that doctor, and to learn the specific meaning illness has to that patient.

It is no longer scientific to divide patients into mutually exclusive categories of "organic" and "functional"; it is just as important for the cardiologist to be concerned with the emotional factors in his patients' illnesses as it is for the psychiatrist to keep alert for chemical, structural, and similar defects in his patients.

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KLIPPEL-FEIL SYNDROME

(Congenital Webbed Neck)

This syndrome has a multitude of names and carries a considerable similarity to a number of other congenital abnormalities of the cervical spine. This syndrome is characterized by a malformation of the cervical spine in which there is a fusion of some or all of the cervical vertebrae. There is shortness of the neck, limitation of head motion, and a low hairline posteriorly.

The spinal deformity may consist of a reduced number of cervical vertebrae, or there may be an osseous mass consisting of a number of hemi vertebrae. There may be a widening or flattening of the vertebral bodies.

In some cases other congenital deformities may be present, and there may be scoliosis, kyphosis, or cervical rib formation.

In the severe cases there may be neurologic complications with tremor, convulsion, the Horner syndrome, syringomyelia, mental deficiency, defective hearing, or hemiplegia. There may be associated ocular manifestations.

If neurological complications do not develop, the prognosis is good and compatible with long life. This may be a coincidental finding in an individual who has had a history of neck strain.

Development of Hypothermic Perfusion since 1897

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IT IS OUR fate as mammals on this planet that we cannot store a gas; lack of oxygen forced us to take our first breath and will force us to take our last. Even during our lifetime, we literally run out of gas whenever we deplete our supply, as during exercise or fever. What then was more natural for physicians 1,500 years ago than to apply cold to a feverish patient? Hippocrates used cold as part of his philosophy that "healing and improvement occur when pain is treated by the opposite condition." The astounding and clairvoyant power of Hippocrates' observation, however, should not induce us to inject modern concepts into selected quotations. Concerning cold, incidentally, we also come across the ambiguous passage that it "causes hemorrhage and cough; so too does snow and ice. It causes condensation, such as mumps and goitre."[1]

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The "Effects of Water, Cold and Warm"

The effects of cold were so self-evident to Galen (2nd century A. D.) that he seemed annoyed when questioned about it. "If someone asks why we give cold water to a fever patient, we answer for two reasons: First, on account of the nature of fever and the nature of cold water; second, on account of experience because in this particular disease, under similar circumstances, cold water has been found to be beneficial." In every following century we find advocates of local application of cold; but since the death of Galen in 201 A. D. almost 1600 years passed before James Currie set another milestone. His fascinating "Medical Reports on the Effects of Water, Cold and Warm, Whether Applied to the Surface of the Body, or Used Internally" was published in Liverpool in 1798.[2] He described accurately the temperature changes of feverish and convulsive patients immersed in cold water. His literal style, wit, and wisdom come to life after 164 years of dormancy on yellowed pages. Here is a case history of tetanus:

"Had poor Gardner been a man of any rank, or indeed had he been surrounded by his family, it is most probable that we must now have abandoned him to his fate. But our proceedings being obstructed neither by the prejudices of ignorance, nor the weakness of affection, another, and a last effort for his life was resolved on. With the consent of his officers, Gardner was carried to the public salt-water baths of this town, then of the temperature of 36 deg. Fahrenheit, and thrown headlong into it. The good effects were instantaneous. As he rose from the first plunge, and lay struggling on the surface of the water, supported by two of his fellow-soldiers, we observed that he stretched out his left leg, which had been for sometime retracted to the ham. But his head did not immediately recover the same freedom of motion, and therefore he plunged down and raised to the surface successively for upwards of a minute longer, the muscles of the neck relaxing more and more after each plunge. When taken out, we felt some alarm: a general tremor was the only indication of life, the pulse and the respiration being nearly, if not entirely suspended. Warm blankets however had been prepared, and general friction was diligently employed. The respiration and pulse became regular, the vital heat returned, the muscles continued free of constriction, and the patient fell into a quiet and profound sleep. In this he continued upwards of two hours, and when he awoke, to the astonishment of every one, he got up and walked across the room, complaining of nothing but hunger and debility. The convulsive hiccup indeed returned, but in a slight degree, and gave way to the use of the cold bath; which he continued daily a fortnight longer; and in less than a month we had the satisfaction of seeing our patient under arms, able for the service of his country."

Cold for Gun Shot Wounds

In 1851 the German surgeon Esmarch went to Paris because he had heard that in some military hospitals the application of ice bags prevented the suppuration of gunshot wounds. Ten years later he introduced his comprehensive report by saying: "I am prepared to meet strong resistance from many quarters if I dare to say that among all available remedies against inflammatory processes, cold is the most important one and without it I would not like to be a surgeon."[3]

The Effect of Cold on Cancer Growth

The dramatic attempt by Smith and Fay in 1940[4] to affect the growth of cancer in human beings by reducing their body temperature to about 30° C for up to eight days paved the way to a great number of physiological observations on ice immersion during the Second World War. In 1950 Bigelow and his co-workers[5] in Canada undertook extensive experimentation on the use of ice immersion hypothermia for open cardiac surgery, and the clinical applicability of this procedure has not ceased to inspire the imagination and diligence of surgeons ever since.

Perfusion Hypothermia

Later it became evident that immersion hypothermia permitted only about eight safe minutes of circulatory interruption at about 28° C, and, therefore, for the time-consuming repair of complicated heart lesions surgeons developed cardiopulmonary bypass procedures by means of pump-oxygenators. However, new demands for greater time limits of safety prompted the combination of hypothermia and extracorporeal circulation; what appeared at first to be a technical convenience, developed into the new concept of perfusion hypothermia, when systematic investigations revealed new phenomena.

The Effect on Heart and Brain

The idea of cooling the bloodstream instead of immersing the whole animal originated with Josef F. Heymans[6] at the University of Ghent in Belgium. At the beginning of the First World War he constructed a glass cannula with a water jacket which enabled him to cool and to warm the blood in a carotido-jugular shunt in more than 300 rabbits. By directing the flow of blood up or down the jugular vein, he induced pronounced temperature changes in the brain or in the heart, and a thorough study of hemodynamic and respiratory functions enabled him to explore the brain

damage above 43° C and the cardiac crisis below 20° C. The temperature could not be lowered further because oxygen supply of the tissues was still dependent on the animal's own slow heart, viscous blood, and reduced blood volume. After the occupation of Ghent in October 1914, these experiments were conducted with feverish diligence and speed, because Heymans knew that his moments in the laboratory were numbered. For the last two years he was not permitted to enter his institute; however, he wrote and finished his monumental work without being able to communicate with other investigators or to consult a library. Such dedication to science should be honored by linking inseparably the name of J. F. Heymans to bloodstream cooling and warming.

Early Experiments

At about the same time the German physiologist Hans Winterstein[7] in Rostock performed a few, inadequately described, but astonishing experiments which have not received the attention they deserve. Nineteen animals (rabbits and guinea pigs; number of each not given) were anesthetized with chloroform-ether, and, after being wrapped in waterproof "Billroth Battist," were cooled with a brine mixture to below 10° C. Then they were removed from the cold and left at room temperature for "some few minutes to three hours." During that time a tracheostomy was done for artificial respiration and a carotid artery was prepared for inta-arterial infusion of 20 to 50ml of oxygenated Ringer's solution to which some "suprarenin" had been added. "The success exceeded all expectation." In only two of the 19 animals, after 2¾ and 3 hours of cardiac arrest, the heart did not respond; but in the remaining 17 the heart started to beat again, and on rewarming spontaneous respiration returned. All animals died after some few hours from pulmonary edema, but one guinea pig with hypothermic cardiac and respiratory arrest of 20 minutes, survived for two weeks. With the benefit of historical hindsight we can consider Winterstein's work a milestone in the development of hypothermic perfusion, because he showed in 1917 that intra-arterial infusion of an oxygenated, low viscosity fluid containing some adrenaline can resuscitate an intact, adult, nonhibernating mammal after prolonged cold arrest of the heart.

Twenty years earlier at the same Physiological Institute of the University of Rostock, Otto Langendorff[8] had perfused for the first time an isolated heart, the date of which event we commemorate in the title of this article. When Langendorff perfused an isolated cat heart from an elevated reservoir with diluted blood, his first application of this new technique was the study of the temperature effect. He showed for the first time that a mammalian heart, continuously perfused with cold blood, resembles closely the amphibian heart in vivo and stops beating at about 10° C. "However, it is evident that at even lower temperatures the heart muscle has not lost its excitability, but that mechanical stimulations will be followed by very slow and weak, but still distinct contractions of the ventricle. Even after very prolonged cooling such hearts will start to beat again if the temperature of the perfusate is raised again." Thus, the use of a pump-oxygenator-heat exchanger for the production of deep hypothermia[9] merely extends the study of an isolated perfused organ to the study of a perfused organism.

Summary

The principle of perfusion hypothermia is a very simple one. In the dog cooled by icy immersion the blood has become too viscous and the heart too slow to make flow through capillaries possible; therefore it is obvious that the temporary loan of a spare pump and some watered-down, oxygenated blood would be very helpful. In fact, man's best friend is so grateful for this modest convenience that he complies by tolerating a much lower temperature for a long time. After rewarming, the borrowed instruments are no longer needed because blood viscosity and heart rate have returned to normal.

We should keep in mind then that the concept which has made prolonged deep hypothermia possible is based on the attempt to overcome capillary perfusion deficits by mechanical devices. As long as this principle is a profitable and productive one, we should take full advantage of it, but should abandon it the moment a better one appears. The faster the progress, the shorter the lifespan of any working hypothesis. We are not dedicated to the preservation of our instruments, techniques or concepts, but to progress of science itself.

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Patron Saints in the Field of Medicine

The Month of March

Among the patron saints honored in March and revered for their association with healing, nursing, hospitals, etc. are St. John of Egypt (March 27) and St. Cuthbert (March 20), both reputedly endowed with miraculous powers of healing; St. Anselm of Nonantola (March 3), who, in founding monasteries, established an adjoining hospital, whenever possible; St. Teresa Redi (March 11), noted infirmarian; and St. John of God (March 8) of the Order of Brothers Hospitalers and patron saint of hospitals and the dying.

As the ancient Romans associated individual pagan gods with particular diseases, so the medieval Catholics associated saints with diseases and attributed to them power not only to cure the diseases when invoked, but also to cause them — supposedly as retribution for errancy or sin.

Prominent among saints invoked either for or against specific benign or malign fortuities in life were St. Joseph (March 19), invoked for a good death; St. Gertrude of Nivelles (March 17), invoked against fever and madness — and incidentally against rats and mice; St. Balbina (March 31) against scrofulous diseases; St. Catherine of Sweden (March 24) against miscarriages; St. Benedict (March 21) against inflammatory diseases, fever, and kidney disease — also against temptations of the devil.

In most cases either these saints themselves had reputedly been afflicted with these diseases, which they were in turn endowed with the power to cure; or during their martydom they had undergone injury, torture, or mutilation to the particular parts of the body with which their names were associated. For example, St. Roch became the patron saint of plague victims, himself having suffered from the disease; St. Agatha became the patron saint of nursing women and of female breast diseases, because in her martyrdom her breasts had been barbarously lopped off.

A glance into the lives of some of these medieval saints constitutes a revelation of incorruptible and inflexible heroism, determination, fortitude, and dedication — often ending in final martyrdom, fully deserving beatification and canonization.

Treatment of Psychiatric Patients in the General Hospital

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EACH SOCIETY develops its own techniques and methods of dealing with its social deviates, its individuals of poor controls, its mentally ill. Western civilization has largely adopted the technique of isolation to solve its problem of mental illness. Thus, there grew up in the two or three centuries prior to the present one the establishment of large colonies or hospitals, based on the proposition that the social body needed protection from its mentally ill. The orientation was custodial: sometimes humane, sometimes inhumane, but always custodial. Psychiatry became alienated from the main body of medicine and psychiatrists became alienists.

Custodial Care

As a result of the focus on custody, treatment was neglected, if not ignored; but from time to time there arose an occasional Pinel to cast off the chains, or a Dorothea Dix to shine the harsh light of public awareness on man's neglect of man. Thanks to these rare and isolated efforts, conditions slowly and painfully improved; the improvement, however, was not universal, either in time or place. In spite of great effort by interested people, the isolation, neglect, and infamous rejection of the mentally ill has persisted, unfortunately, in some places, even to this day.

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Presented at St. Mary's Diamond Jubilee September 8, 1962

There was a time in medical history, however, when the major portion of the therapeutic armamentarium of healers consisted of psychotherapy. Whatever the methods of ancient medicine were designed to do, their major function was the relief of anxiety. The interest of more enlightened historical figures in the problems of mental illness are well known and need no documentation here. Pope Innocent III, the great establisher of hospitals in the 13th century, specifically directed that the hospitals be established for the care and treatment of physical and *mental* illnesses. There were also other islands of humanitarianism in the great sea of rejection, while psychiatry was painfully struggling to establish significant classification, precise description, and ultimately rational treatment.

General Hospital Care

Prior to 1800 only two general hospitals in the United States accepted psychiatric patients: the Philadelphia General Hospital, established in 1732, and the Society of the New York Hospital, established in 1779. During the 19th century, six general hospitals, classed as church institutions, nonprofit or private, opened their doors to psychiatric patients. In addition, 11 government general hospitals, federal, county, or municipal, also cared for the mentally ill. Thus, in 1900 there were 19 general hospitals accepting psychiatric patients.

From 1900 to 1920, 13 more hospitals instituted care for psychiatric patients; between 1920 and 1940, 98 general hospitals were added to this group; and between 1941 and 1945, 46 new units were added, including 18 in permanent general hospitals of the military establishments within the continental United States. Therefore, at the close of World War II there were 176 general hospitals offering psychiatric care.

By the end of 1957 there were 584 such units, and in 1960, 600 plus.

Early Treatment

The increasing number of general hospitals offering psychiatric care and the larger number of beds available in such units describe a rapidly rising curve of facilities offering immediate care to psychiatric patients early in their illness and close to their homes and families.

Undoubtedly this rise has resulted from the development of therapeutic and diagnostic tools within the framework of psychiatry, which make possible the successful treatment of most patients and their return to useful activity within a short period of time.

World War II Experience

In World War II, when psychiatric casualties were evacuated to the zone of the interior for definitive care, fewer than five per cent were returned to active duty status. Studies of Grinker, Hanson and Kelley showed that the simplest of techniques, including sedation and simple ventilation, if brought to bear early in the illness and close to the soldier's unit, resulted in marked increase in the rate of rehabilitation. In Korea, as a result of this experience, Colonel Glass established small treatment centers close to the combat units, where psychiatric casualties received prompt, effective treatment. Under this regimen, over 70 per cent of these casualties were returned to their combat units.

Other Factors

Demand on the part of patients and families for psychiatric care near home also seems to be an important factor in the development of the small, intensive psychiatric treatment center. Nonpsychiatric physicians have been an important source of demand for these centers; our medical colleagues, hospital administrators, and others interested in general problems of health have long been aware that many psychiatric patients occupy hospital beds under nonpsychiatric diagnoses. Often the fundamental psychiatric condition, which was the true disabling factor, was unnoticed or untreated.

Success of Small Centers

Examination of the results of these acute psychiatric treatment centers is germane to our discussion. In the year 1958 the 450 units then established, containing 15,000 beds, admitted and discharged 200,000 patients, for an average stay of 15 days, in contrast with the large state psychiatric hospitals, which, during that same period, admitted 274,000 patients for an average stay of 677 days.

During the three years prior to 1962, the Veterans Administration General Medical and Surgical hospitals which had psychiatric units with a total of 5500 beds, admitted and discharged more patients than the large Veterans Administration neuropsychiatric hospitals with 55,000, or over 10 times as many beds. The Veterans Administration no longer builds large strictly neuropsychiatric hospitals but concentrates on small intensive treatment centers.

In New York City there has been established a community plan requiring every patient to undergo a period of observation in a general hospital within the city, prior to commitment to a state hospital. As a result of this plan, the observation wards quickly became treatment wards, and two-thirds of the patients improved sufficiently without later hospitalization as chronic cases.

This seems to indicate that prolonged hospitalization is not necessary for most psychiatric patients. It also indicates that regimentation, impersonal attitudes, overcrowding of the large psychiatric hospital produce loneliness, frustration, isolation, and apathy, all of which only reinforce already existing psychopathology.

St. Mary's Unit

In October of 1959, in the seventy-second year of its life, St. Mary's Hospital opened a 54-bed psychiatric unit, consisting of an open ward of 34 beds and a so-called closed ward of 16 beds. This event was preceded by several years of planning on the part of the hospital's administration and medical staff, with particular effort exerted by certain members of the medical staff most interested in establishing such a unit.

Section Instituted

During the planning phase there was no psychiatric section of the medical staff; in order that such a section be available at the time the unit opened, the section was organized about one year earlier. Regular meetings were held during that year, at which anticipated problems were discussed, solutions proposed, and methods of operation delineated. It was recognized that familiar ideas of operation die hard, but that courage could defy tradition and initiate in this hospital a psychotherapeutic unit in which the psychotherapists would be aware of the psychological influences of therapeutic measures, including social forces in constant action upon the patient, modifying his behavior toward better health. The unit was to focus on therapy after careful diagnosis and was to treat acute conditions; thus time limits of patient stay were established, as well as some definition of the patient population which the section proposed to treat.

Inter-Staff Relationships

In foreseeing the impact of this new section on long-existing other sections of the medical staff, it was realized that we would be accepted with open arms by some, with indifference by others, and with suspicion by a few. Therefore, in building relationships with our colleagues, we proceeded with good sense, good manners, good humor, and good faith. As a result, our relations have been most cordial.

The ancillary staff also was established during this year prior to the opening of the unit by selecting key nursing and auxiliary personnel, placing them throughout the hospital in strategic positions, where they could become oriented to the tone and measure of the institution, and by the time of opening find themselves comfortably accepted members of the hospital staff.

Kinds of Disorders Seen

A brief and general examination of the results of operations after three years is in order here. We have treated about 700 patients a year, with an average patient-stay of 20 days. A review of the diagnostic categories of patients treated indicates that we have had experience with all of the usually-seen adult psychiatric conditions, ranging from the neuroses through the severe psychotic syndromes. (The unit does not accept children.) The most comon symptomatic group of patients have been those with depressions; from the mildly neurotic through the involutional and the severely psychotic.

We have dealt with schizophrenia of all degrees of severity, acute and chronic brain syndromes, toxic, degenerative and infectious. In short, we have seen as ideal a cross section of psychiatric problems as appear in medical practice.

Progressive Moves

During all of this time the focus has been on patients' needs. The unit is treatment-centered and patient-centered, with a consistent attempt to disregard orthodox practices in favor of the procedures which will be of the utmost benefit to the patient. In the course of the operation, it became clear that the architectural considerations which dictated proportions of the unit — 38 open and 16 closed beds — were in error: that the need was for more beds of the open variety and fewer for the locked-door treatment.

It was decided that the section which had been designed as a closed station would therefore be closed *or* open, not because of architectural design or simply because the door had a lock, but according to the needs of the patients. This open, or need-centered policy, has provided gratifying results: the whole tenor of the ward has improved; the atmosphere has become more wholesome; and finally, both patients and staff are more comfortable.

This idea of need-centered or patient-centered attitude has spread, and other psychiatric units in this community have adopted a similar position. Additionally, the local probate court, which had long insisted that committed patients be kept in a locked station, has recently reviewed its regulations and has announced that patients committed to a private hospital for care need no longer be locked up, but that the kind of treatment they receive be determined by their needs as prescribed by their physicians. While this may seem superficially a small advance, it is in this case a gratifying forward step.

Other Results

Other results of the function of the psychiatric unit within the hospital have become apparent. There is easy and comfortable transfer of patients back and forth within the hospital, and patients who come primarily for psychiatric treatment can readily be transferred to a medical or surgical station when necessary. Transfer of patients from medical and surgical stations to psychiatry has also been easy and comfortable, with a minimum of psychic trauma to the patient. Consultations have also reflected the presence within the hospital of a group of psychiatrists willing and ready to help in the management of difficult behavioral problems and tricky diagnostic situations. The specter of the psychiatric consultation which is utterly futile or trivial or the result of a breakdown in the relationship between the patient and doctor does not haunt this staff, where relationships between psychiatrists and nonpsychiatrists are at a high level.

Mutual Teaching and Learning

There have also been a number of teaching functions carried out on the psychiatric unit. Formally this effort has been confined to the intern training program, the school of nursing, and the psychiatric staff; in a more informal way, however, we are all learning from each other. Whatever our nonpsychiatric colleagues are learning from us, it is clear that we are benefitting by their example of applying scientific principles both in diagnosis and in treatment.

The Future

While looking back at 75 years of history in one institution, one must also look forward 75 years; for to look back without learning and to look forward without planning are idle and unprofitable. Though our section is a relative newcomer in this institution, we are proud of its accomplishments and look forward to what can be done in the future. If the function of a hospital is treatment, training, and research, we have partially succeeded in the first two fields. Each new invention and discovery will make our division more efficient and our services more widely employed. We hope in the near future to expand our training efforts, particularly in the field of residency training. To do this, however, we must expand our treatment efforts and our services to the community to include the day hospital, the night hospital, and the outpatient clinic, as legitimate areas of expansion and progress.

In the field of research the private, open-staff hospital has potentialities; we hope that before too long significant contributions will be made by St. Mary's psychiatric section.

The CARDIAC CATHETERIZATION Laboratory in the Private Hospital

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THE ESTABLISHMENT of a cardiac catheterization laboratory in a private hospital presents a distinct challenge as contrasted with the county, city or university type of hospital. This is necessarily so because of the more basic economic factors inherent in the operation of a private hospital as opposed to institutions supported by tax appropriations. This factor alone necessitates that the laboratory be equipped with the latest in diagnostic equipment and techniques, important in ensuring accurate and complete diagnostic results with regard to congenital or acquired heart disease. This also requires that the administration maintain a definitely dedicated attitude to the idea of such a laboratory being an essential, stimulating, teaching instrument as well as a service facility. This philosophy has been evidenced in the progressive attitude and the degree of co-operation shown by the administration of St. Mary's Hospital in the establishment of such a diagnostic cardiac catheterization laboratory. September of 1959 saw the laboratory fully equipped and the first diagnostic cardiac study done there.

The equipping of such a laboratory necessitates that complete studies be contemplated and to this end the following diagnostic procedures were established:

1. Right heart catheterization
2. Combined right and left heart catheterization
3. Single and double scale cuvette oximetry
4. Phonocardiography
5. Forward or selective angiocardiography
6. Retrograde aortography
7. Cardiogreen dye curves
8. Ascorbic acid curves
9. Vector cardiography
10. Van Slyke analysis
11. Methyl iodide curves

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The objective, naturally, of the diagnostic procedure of cardiac catheterization is to learn the exact nature of the congenital or acquired cardiac lesion. In planning corrective open-heart surgery, it is imperative that the cardiac surgeons be completely aware of the physiologic and anatomic disturbance underlying the specific cardiac disease to ensure proper planning, the technique and mode of surgical correction.

The Studies Made

From September 1959 to September 1962, three hundred and thirty-four diagnostic procedures were carried out, some of which, naturally, may be multiple in a few selected patients. The following illustrates the cross-sectional pattern of these studies.

1.	Patients 14 years and under	114
2.	Adults	220
3.	Right-heart catheterizations	250
4.	Combined heart catheterizations	45
5.	Angiocardiograms, forward or selective venous	38
6.	Aortograms	17
7.	Cardiogreen dye curves	75
8.	Methyl iodide curves	25
9.	Ascorbic acid curves	17

From the above table it will be noted that 114 diagnostic catheterization studies were carried out in children and 136 in adults. In this latter group approximately one third were right and left catheterization studies, with the remainder being right heart studies directed to the evaluation of typical mitral valve disease or congenital cardiac lesions.

Special Studies

For completeness of diagnostic efforts in the typical congenital heart diagnostic workup, it has frequently been felt necessary to do:

1. Single and double scale oximetry
2. Van Slyke's when indicated
3. Cardiogreen dye curves
4. Ascorbic acid curves utilizing the platinum electrode catheter
5. Methyl iodide, aortography and angiocardiography when indicated

The Diagnosis Obtained

It has been the general experience of cardiac catheterization operators that many pitfalls in diagnostic evaluation of congenital heart disease may appear, unless completeness of studies is insured.

Breakdown of the diagnoses obtained in the above studies follows:

Congenital Defects

1. Anomalous pulmonary vein connection
2. Congenital aortic valve stenosis
3. Congenital mitral valve stenosis
4. Arteriovenous canal
5. Interatrial septal defects of ostium secundum and ostium primum type
6. Pseudo truncus arteriosus
7. Interventricular conduction defect
8. Subendocardial fibroelastosis
9. Tetralogy of Fallot
10. Complete transposition of the major vessels
11. Pulmonic valvular stenosis
12. Idiopathic dilatation of the main pulmonary artery
13. Coarctation of the aorta
14. Patent ductus arteriosus

Acquired Defects

1. Aortic aneurysms
2. Rheumatic aortic and mitral valve lesions, single and mixed
3. Complete heart block
4. Superior vena caval syndrome

In the evaluation of the acquired graph, it is readily understandable that the majority of lesions fall within the rheumatic heart disease classification. The aortic valve lesion represents a definite hazard in that insufficiency may often be misdiagnosed as a Graham-Steell murmur. In our laboratory it has become routine to do retrograde aortography prior to mitral valve surgery if the phonocardiograms and other clinical data point to possible hidden aortic valvular insufficiency.

Summary

Constant improvement and advance in diagnostic equipment make it mandatory that a modern laboratory be kept up-to-date by incorporating newer diagnostic tools as they become available. St. Mary's has already procured image intensification and cineangiocardiography is in the planning of the newer improved types.

Exchange of information and access to various laboratories throughout the country are important for self-analysis and self-criticism, as well as for self-improvement. We here acknowledge the kindness and courtesy extended to us and to the Cardiac Catheterization Department of St. Mary's Hospital.

Hypothermia for Operations on Intracranial Aneurysms with the aid of open and closed thoracic perfusions

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WHEN OPERATIONS are done on the brain and structures contiguous to it, the advantages of a surgical field relatively free of blood are considerable. To obtain a relatively avascular field for operations upon intracranial vascular lesions we have brought about low volume flows or total arrest of the circulation at low temperatures, produced with the aid of an extracorporeal mechanical circuit and total body cooling. With clamps we have been successful in temporarily interrupting the arterial blood supply to an aneurysm prior to clipping of a cerebral aneurysm, using moderate hypothermia of 25 to 30° C. (77 to 86° F.) by cooling of the body surface. It is true, however, that prolonged occlusion at such temperatures may be complicated by serious neurologic sequelae, whether arrest of the arterial blood flow to the brain has been induced by simultaneous occlusion of the carotid and vertebral arteries in the neck[1] or by the application of clips temporarily placed intracranially on the circle of Willis.[2] Moreover, the dangers of ventricular fibrillation are a recognized hazard to anyone subjected to such temperatures. A period of arrested brain circulation of more than 30 minutes seems best tolerated when the surface temperature of the brain is 20° C. or less, since the metabolic demands are markedly reduced at such a low temperature.

Whereas selective cooling of the brain as reported by Kristiansen and associates[3] does permit controlled circulatory arrest to the cerebral hemispheres at low temperatures, the technic requires total heparinization of the patient's blood

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and does not allow establishment of cardioplegia and total circulatory arrest. Whether this technic is more suitable than total cooling of the body by extracorporeal circulation is a matter which calls for more investigation. The Kristiansen procedure is advantageous in that it is relatively simple and allows ease of operation. My colleagues and I are now investigating and appraising the technic, and we plan to report upon our observations at some later time.

Open Thorax Perfusion

We have reported[4,5,6] our experiences with the surgical treatment of intracranial vascular lesions with the open-thorax perfusion technic (Drew) of total cooling of the body. To apply this method median sternotomy is required, and the heart is cannulated so that the patient's blood proceeds to a mechanical pump for recirculation. The patient's own lungs are used as an oxygenator. Thus far we have operated upon 18 patients with the aid of this method* (table), five of whom died postoperatively. The reason this technique was selected was that we judged it impossible to carry out definitive treatment if any other method were employed. Total circulatory arrest was maintained for varying periods; in one patient it was employed for 44 minutes (the maximal duration in the series) with an excellent result. The method possesses obvious disadvantages; median sternotomy must be performed, direct cardiac catheterization must be done, and large volumes of blood (10,000 cc. average) are required.

In 18 additional patients we have used peripheral cannulation and closed thoracic perfusion, as recommended by various authors.[7-9] These patients had bleeding intracranial aneurysms (table); three of whom died postoperatively. In the first five cases peripheral cannulation was established by introduction of a cannula or catheter into the right cardiac atrium and inferior vena cava by way of the jugular and femoral veins, respectively. Venous blood was directed to a pump-oxygenator (Mayo-Gibbon type) for oxygenation, and was then recirculated to the patient by way of the left femoral artery. The advantages of this method over the open-thorax technic of extracorporeal circulation are that it is less complicated and requires only about half the total amount of blood and fluid. We shall not detail the nature, constituents, and amounts of blood and fluids in the present paper.[10,11]

In the remaining 13 cases venous cannulation was achieved by way of both femoral veins, a method proving to be highly successful. Since blood flow is about one half the volume per minute as compared to blood flow when the open-thorax or Drew technic is used, cooling and rewarming time of the body generally is twice as long when peripheral cannulation and closed-thoracic perfusion are used than when the open-thorax method is applied. When the patient's blood is rewarmed to 26° C., cardiac fibrillation is readily corrected by external defibrillation (Corbin-Farnsworth). It is interesting to note that in two patients normal cardiac rhythm returned spontaneously without defibrillation.

TABLE

Salient Features: 36 Patients Operated Upon for Intracranial Aneurysms With the Aid of Perfusion at Less Than 15° C.

Aneurysm, site (artery)	Perfusion, type	
	Open thorax	Closed thorax
Anterior cerebral	1	0
Anterior communicating	5	8
Internal carotid at bifurcation	4	4
Middle cerebral at trifurcation	3	1
Internal carotid near posterior communicating	4	5
Arteriovenous aneurysm, temporal	1	0
Total	18	18

*The operations were carried out by members of the Section of Neurologic Surgery of the Mayo Clinic, with neuro-anesthesiologists from the Section of Anesthesiology as integral members of the surgical team.

Benefits from Thorax Perfusion Technic

We have operated upon 36 intracranial vascular lesions with the aid of the open or closed-thorax perfusion technic, with the nasopharyngeal thermistor temperature at an average of less than 15° C. during the definitive intracranial procedure, and with periods of low flows or total circulatory arrest (table). Operations upon aneurysms situated in the region of the anterior communicating arterial complex appear to us to be ideally suitable for application of this technic. But in addition to that specific anatomic indication, the marked advantages of operating in a relatively bloodless field have caused us to use the method in operations upon lesions situated in other parts of the circle of Willis. It is essential to establish intracranial hemostasis both before and after total heparinization; this is time-consuming, because the primary source of bleeding appears to be the dural attachment to the cranial vault.

Patients who did not recover satisfactorily from their operations died of intracranial complications secondary to the repair of the vascular lesion. In these cases death could not be attributed directly to the method of extracorporeal circulation and profound hypothermia which had been used. It is preferable, of course, to operate upon patients whose sensorium and neurologic status are relatively intact, but this is not always possible. We did, however, operate successfully upon several patients who were comatose and had a severe neurologic deficit preoperatively. The ages of our patients ranged from 16 to 63 years.

Psychometric Studies

Preoperative and postoperative psychometric studies were conducted on all patients when the clinical condition permitted such observations to be made. If no psychometric disturbances were manifested preoperatively, in the majority of cases none were exhibited postoperatively. Those who had had disturbances preoperatively sometimes showed an increase in such disturbances during the early postoperative period, such as may occur after the performance of other intracranial procedures. However, improvement in all these patients to at least the preoperative status or better was recorded when they were tested in the late postoperative period. It is reasonable to suppose, therefore, that damage to the brain did not increase after successful obliteration of these aneurysms with the aid of the technics described.

Summary

Thirteen of 18 patients who had intracranial vascular lesions were operated upon successfully with the aid of open-thorax perfusion (Drew) and profound hypothermia maintained at less than 15° C., and with varying periods of reduced circulatory flow or total circulatory arrest.

Fifteen of 18 patients who had intracranial aneurysms were also operated upon successfully under similar conditions with the aid of closed-thoracic perfusion technics.

The advantages of the closed-thorax technic of perfusion are that it is less complicated and requires only about half the total quantity of blood and fluids as compared with the requirements for the open-thorax perfusion technic of Drew.

Success or failure of the combined surgical procedures seems to be governed by efficient teamwork. Excessive loss of blood must be prevented by meticulous hemostasis.

If total circulatory arrest to the brain is contemplated, we believe it can be accomplished safely by means of the technics outlined.

Many aneurysms of the circle of Willis can be operated upon successfully by other methods; however the methods which we have outlined, used under proper circumstances and selection of patients, appear to afford the surgeon the opportunity to deal with these difficult lesions with a measure of assurance, because he will be able to work in a relatively bloodless surgical field, and because the low temperatures offer additional protection to the brain during longer periods of anoxia than are presently possible by other methods.

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Fig Poultice for Boils and Blains

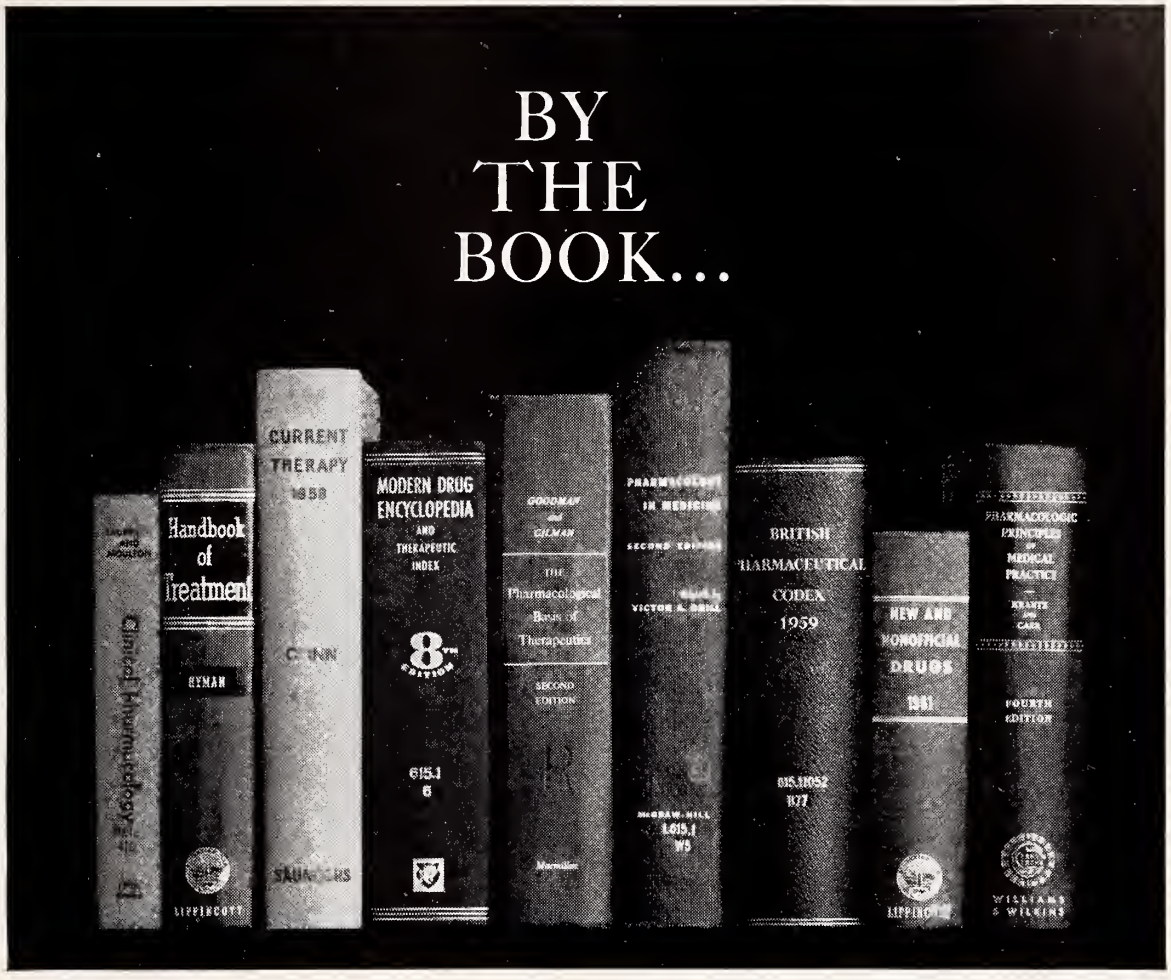
In the book of Exodus, Chapter IX, we read that the Egyptians and their beasts were afflicted with boils and blains (blisters) because Pharaoh would not let the Israelites go. Prosaic as such an affliction sounds, the manner of its acquisition was highly unique and unorthodox. At the Lord's instigation Moses picked up handfuls of furnace ashes and tossed them into the sky, whereupon they immediately descended as boil-and-blain-dispersing dust, settling on the Egyptians and their beasts. Even the magicians did not escape!

In the book of Kings, Chapter II, Verse 20, we find Hezekiah with a boil. Here the text does not say specifically how he acquired it; but we are not too astonished to learn that he got rid of it by applying a fig poultice. "And Isaiah said, 'Take a lump of figs.' And they took and laid it on the boil, and he (Hezekiah) recovered."*

As for Job, we know that he was smitten with boils by Satan "from the sole of his foot unto his crown."** We regret that in his case we know of no such sudden and dramatic cure as Hezekiah's; we can only assume and trust that Job's boils vanished long before the prosperity and felicity of his venerable old age.

* Kings II, 20:7
**Job 2:7

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—Cliff S. Emeny, Rule of Law, Freeman



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St. Mary's Diamond Jubilee



THE DIAMOND JUBILEE of St. Mary's Hospital of Minneapolis, which stimulated the scientific program represented in this issue of Minnesota Medicine, moves one to reflect upon the role of the community hospital in the ever changing panorama of medicine in the United States. This period of three fourths of a century has seen the community hospital assume the vital role in the care of the sick. As more and more complicated techniques of diagnosis and therapy have evolved, hospitals have become the required locale for translating these relatively sophisticated methods into maximum care of patients.

The medical staff and administration of a well equipped hospital have assumed many responsibilities now considered part of necessary patient care but unheard of even twenty-five years ago. Now in such a hospital is found a well equipped cardiac diagnostic laboratory with all the facilities necessary for precise detection and localization of all forms of defects of the heart. A decade ago only isolated experimental cardio-vascular laboratories were equipped to do any kind of cardiac surgery. Now we find in leading community hospitals full facilities for open heart surgery, with extra-corporeal pumps and hypothermia. Within the hospital itself now can be found psychiatric facilities for definitive care of psychotic individuals. This marks the return of psychiatrists and their patients to the general flow of medicine, accelerating rehabilitation and return of patients to their homes and their jobs.

Many applications of isotope medicine have been made available in recent years. Thyroid function and localization of thyroid disease can be delineated by such methods. In the isotope laboratory at St. Mary's Hospital studies for pernicious anemia, fat absorption defects, blood regeneration, blood destruction and blood Volume are done by these methods. In this laboratory hypertensive patients can be screened for unilateral kidney disease by radio-isotopic methods. Isotope therapy available here includes hyperthyroidism, leukemia, other forms of malignancy, and polycythemia.

We find now in community hospitals systematic teaching programs and research activity in clinical fields. The atmosphere of teaching and research maintains medical care at its highest level. As further advances in medicine appear certainly an enlightened community presses for their effective local application. St. Mary's is a community hospital which has striven for such high levels of medicine over the 75 years of its existence.

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St. Mary's Hospital of Minneapolis is representative of the many fine community hospitals in Minnesota engaged in progressive programs of clinical research and postgraduate education, in addition to the all important services to patients. The Editors of Minnesota Medicine are pleased to join in a salute to the St. Marys staff at this time of the Diamond Jubilee of their hospital.

—The Editors

Intravenous Mannitol

A SERIOUS complication of shock is renal inchemia, which may result in acute renal insufficiency, oliguria and renal failure. Various conditions leading to extensive tissue or blood destruction may result in similar renal failure which is further complicated by precipitation of methemoglobin in renal tubules, or so-called "hemoglobinuric nephrosis." These conditions include large burns, surgical or accidental trauma, incompatible blood transfusion reactions and intravascular hemolytic reactions following transurethral prostatic resections, using distilled water as irrigating fluid. The serious and often fatal results of the latter situation were recognized by Creevy and Webb in 1947[1], and these observations were followed by the use of isotonic irrigating fluid for

Continued

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References: (1) Ernst, E. M.: Current Therap. Res. **3**:167, 1961. (2) Starling, R. J.: J.M.A. Georgia **50**:442, 1961. (3) Sprogis, G. R.: Current Therap. Res. **3**:393, 1961. (4) Coffee, H. L.: Clin. Med. **69**:1561, 1962. (5) Mattey, W. E.: Indust. Med. **31**:33, 1962.

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transurethal operative procedures to prevent hemoglobinemia. Apparently hemoglobinemia in the degree that is found after transurethal surgery must be accompanied by other factors which tend to disturb renal function in order to produce the typical oliguric syndrome. Nevertheless, the importance of prevention of hemoglobinemia is attested to by the virtual elimination of this complication following the use of isotonic irrigating fluids. The non-electrolytic substances most commonly used to make up these fluids are glucose[2], glycine[3], mannitol[4], and mannitol-sorbitol mixture (Cytal-Cutter)[5]. A common property shared by these substances is that, in sufficient concentration, they act as osmotic diuretics and thus protect the kidneys by increasing the volume of urine flow. The use of intravenous mannitol would seem indicated in situations such as those listed above where renal failure might develop, and during and after operative procedures to stimulate adequate urinary output.

Mannitol is a hexahydric sugar alcohol which occurs naturally in a number of plants and fungi. It is not metabolized by the body, and it is excreted by the glomeruli. Approximately ten percent is reabsorbed by the renal tubules. For many years, this drug has been employed as a measure of glomerular filtration rate by determination of its renal plasma clearance, although the accuracy of this test is somewhat diminished because of tubular reabsorption. Mannitol is an effective osmotic diuretic by being excreted in high enough concentration to carry out a significant osmolar equivalent of water. Thus, it exerts no pharmacodynamic action, as such, except that the osmotic effect influences distribution of water across the renal tubules.[6] There is some increase in sodium excretion with this diuresis, but the effect is apparently slight since Smith, Finkelstein and Smith[7] have intravenously administered as much as 80 grams of mannitol to a normal man without producing toxic symptoms. Berg, Fedor and Fisher[8] have infused large quantities of isotonic Cytal solution into dogs without causing untoward symptoms, despite depression of serum sodium levels to an average of 99 meq/liter. Selkurt[9] mentions the "protective" effect of intravenous mannitol on kidneys from decrease in function following renal ischemia. He states: "Because the osmotic diuretic, mannitol, improves urine flow and clearances when used after renal ischemia, the suggestion follows that the use of this diuretic or one having similar properties, might prove helpful in treating cases of persistent renal failure and uremia which are seen following certain cases of shock, when blood pressure and renal circulation have been restored by infusion of blood or plasma."

Parry, Schaefer and Mueller have produced experimental acute renal failure in rats by injecting methemoglobin intravenously. They reported a mortality rate of 93.5 percent in these animals, which was reduced to 1.1 percent by administering intravenous mannitol immediately after the methomoglobin injection. They state, however, that delaying the mannitol injection for 30 minutes caused a sharp increase in fatal reactions, thus adding emphasis to the need for immediate action when intravascular hemolysis is suspected. The mannitol was thought to be effective in prevention of protein cast formation in the distal renal tubule by containing water within the tubule lumen[10].

Mannitol for intravenous injection is available in 50 cc. ampules containing 12.5 grams of the substance. It may be administered in this concentration to obtain rapid diuresis. Likewise, it is readily miscible in solutions ordinarily used for intravenous infusion. We have generally given 25 grams of mannitol per liter of fluid, administered during and after operations at a rate according to the condition of the patient. It has been especially gratifying to note an adequate outflow of urine following operations, notably radical perineal prostatovesiculectomys, which have occasionally been associated with post-operative oliguria due to renal failure.

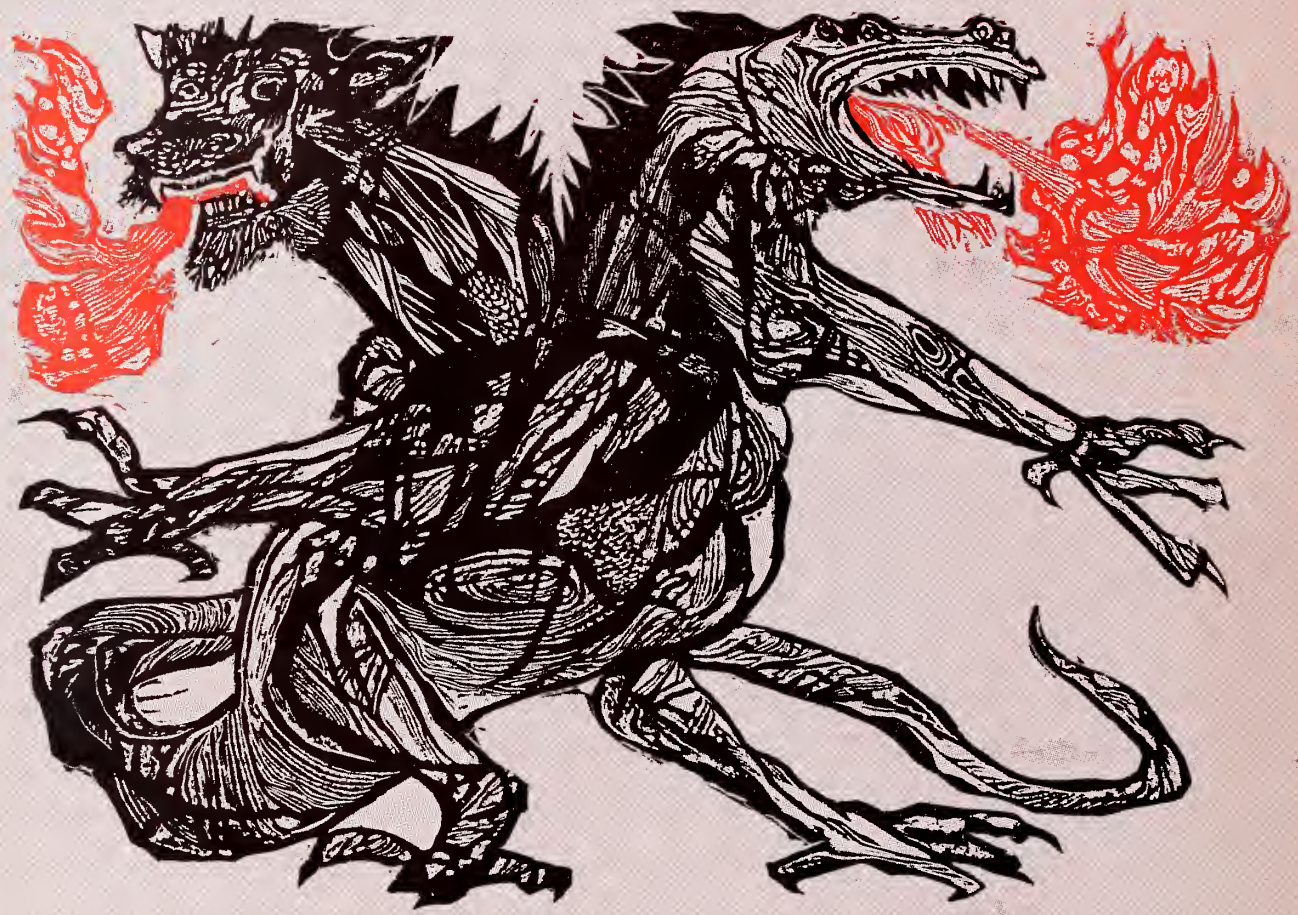
W. E. Price, M D.
E. A. Webb, M D.
B. A. Smith, M.D.
Minneapolis, Minnesota

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"Not So Wild A Dream"

IN THIS issue, Shumway and his associates describe their technique for making functioning homografts and autografts of the heart. This truly is a significant accomplishment; for over the years, many investigators have had a try at this vexing problem of transplanting the heart so that it is capable of doing work. Failures were so continuous that most consoled themselves with the feeling that the procedure was probably impossible. The usual reason given for failure was that the heart required an extrinsic nervous control in order that it could respond adequately to the vicissitudes of life. The frustration of others was evidently a challenge to Shumway and, hence, the heart is now added to the ever growing list of organs, thyroid,[1] parathyroid,[2] lung,[3] liver,[4] stomach,[5] intestine,[6] spleen,[7] kidney,[7] adrenal,[8] and ovary,[9] that can be successfully transplanted by direct vascular suture temporarily as homografts or permanently as autografts. In fact, all the organs of the body have now been successfully transplanted as long-term functioning autografts in the dog save for the pancreas and the central nervous system itself.

It is, of course, interesting to see how often in the past pronouncements have been made that a certain procedure could not be done. Always, however, such manifestos are nullified by enterprising investigators who refuse to genuflect to the experts. Such has been true in the field of transplantation, where it has been said for many organs that they would never function properly without central nervous system connections. While blood vessels no larger than a millimeter in internal diameter can now be anastomosed with reasonable hopes of continued patency, there is, so far, no good way to rejoin nerve fibers which are only a fraction of this size. Fortunately nature in her wisdom has provided other means for controlling the function of organs either via the blood stream or by intrinsic nervous control within the organ itself. Perhaps in these times of stress, we could do better without direct connections between the head and the principal visceral organs. Certainly this is true with the stomach and probably with the small and large bowel as well. At any event, no thoughtful seer in this decade is wont to say anything is impossible.

One may ask at this point, of what value is it to perform such procedures? Are they merely surgical tricks or do they contribute to our store of knowledge? In the past, such studies on other organs have contributed much to our understanding of renal, endocrine, gastrointestinal hepatic, and pulmonary function. The planned long-term studies of Shumway on dogs with autotransplants of the heart will further contribute to our knowledge of this organ. Beyond this, however, there are other dividends to be derived from such studies. Participating in experiments such as these described by Shumway are men in their formative years, and this experience is an invaluable part of their surgical education. As a matter of fact, such an experience should be an integral part of every surgeon's training; for such studies teach him to use his head as well as his hands. I believe that the time is not too far distant when investigational work will and should be a requirement for everyone completing a specialty training program.

These are the dividends of the present, but even more will be accruing in the future. Limited success has already been obtained in the transplantation of kidneys between related but not identical persons.[10] Moreover, with the partial unraveling of the DNA (desoxyribonucleic acid)

Continued



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molecule coupled with the new found role of the thymus gland in apparently establishing lymphocytic specificity and maturity,[11] we may see more widespread transplantation of organs in patients than was thought possible in this century or even in this decade. As far as technical considerations are concerned, we are ready. But are we prepared mentally and emotionally? Bernard Shaw was fond of saying, "youth is wasted on the young." What a wry joke it will be if we find that youth in the guise of replaceable organs is also wasted on the old; and it will be too, if we do not increase our efforts to enrich the soul of man as well as his substance. All of us, then, must start now to prepare ourselves and our patients for the ever pervading, ongoing nature of medicine in this Twentieth Century. We can not continue to ignore the prophets of old and that Greatest Teacher who knew that life is judged by its meaning and not merely by its duration. The spector of increasing the life span of those who have no desire to live beyond the biblical "three score and ten" must be foremost in our thoughts, as it was in Swinburne's, when he wrote:

"I am tired of tears and laughter
and men that laugh and weep,
Of what may come hereafter
for men that sow and reap:
I am weary of days and hours,
Blown buds of barren flowers,
Desires, dreams and powers
and everything but sleep." . . .
(from the Garden of Proserpine)

Richard C. Lillehei, M.D.
Minneapolis, Minn.

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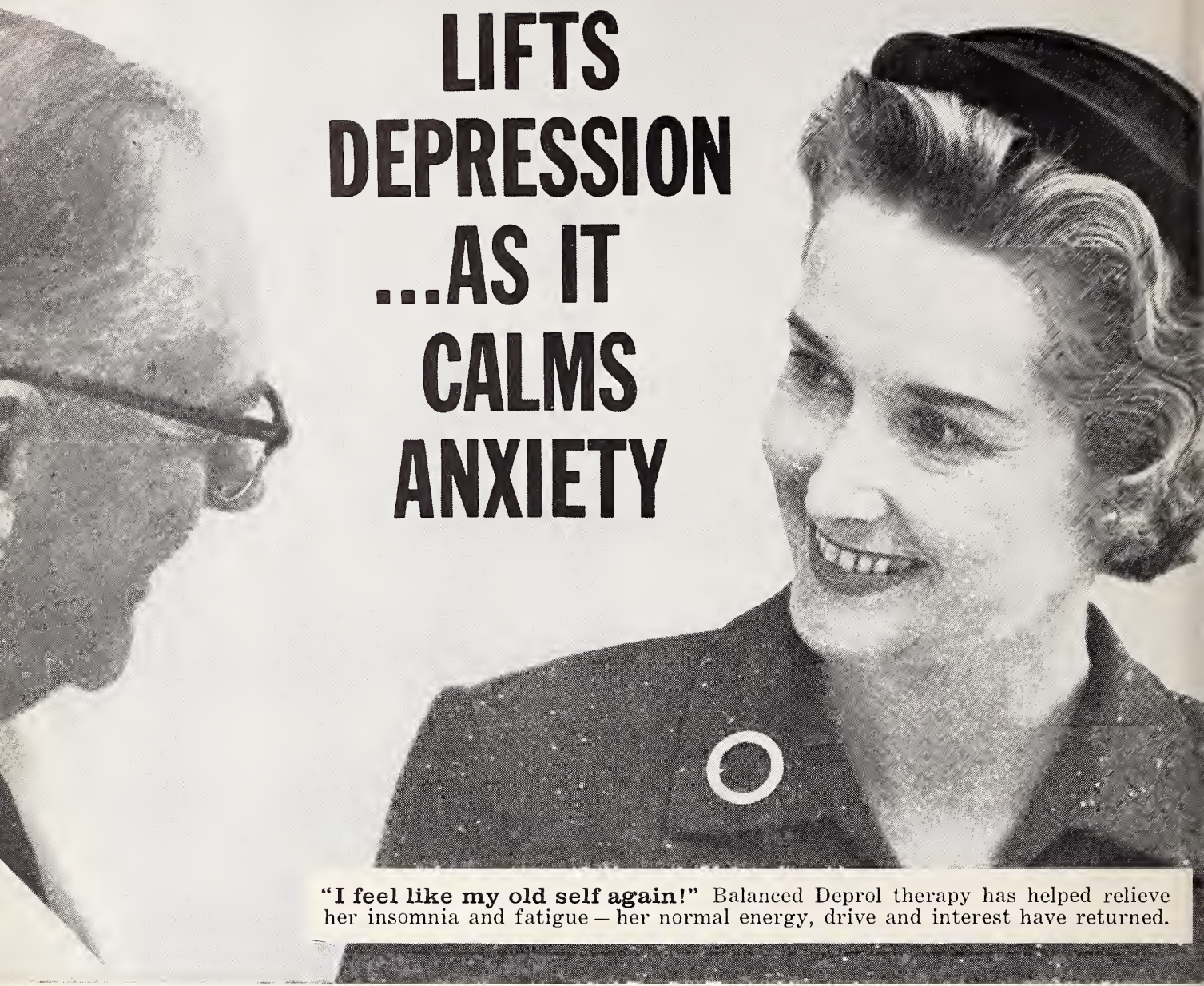
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Lucina is the feminine form of the Latin adjective *lucinus* from *lux* (light). In Roman mythology Lucina was, appropriately, the goddess who "brings to light": the goddess of childbirth and, by extension, the patroness of newborn children. In her honor an annual festival was held every March 1, when the Roman matrons assembled in her temple to adorn it with flowers and to invoke her favor for generations yet unborn.

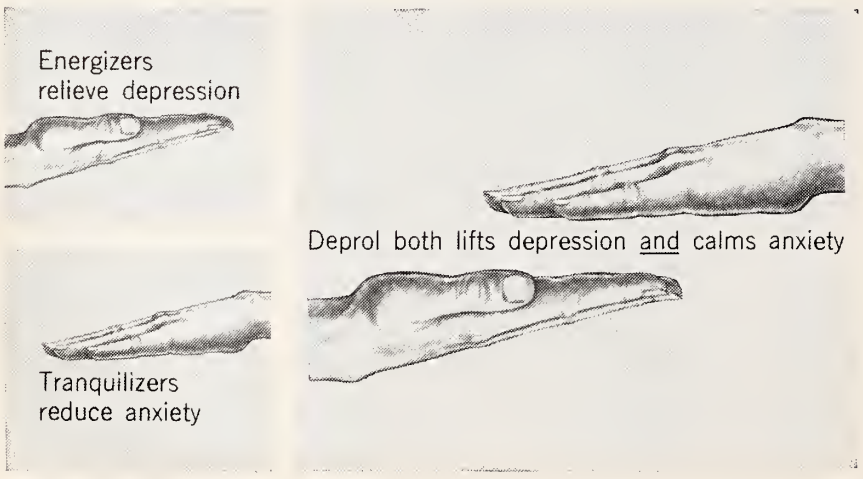
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The patient did well for four days and then had an increasingly high fever. The abdomen distended. He was treated with naso-gastric suction, parenteral fluids and chloramphenicol. The temperature became progressively higher and by the tenth postoperative day the examination revealed that the patient had a bulging, moderately tender mass in the right lower quadrant. Examination failed to show any evidence of fluctuation or an abnormal amount of induration in the incision or the adjacent abdominal wall. A urethral catheter was placed in the bladder but the mass persisted. Rectal examination showed that the cul-de-sac was full and bulging. The rectal wall felt edematous and there was definite fluctuation elicited by the palpating finger. A flat film of the abdomen showed that the right side of the pelvis was dense and that the density extended to the left of the midline and upward to the upper end of the paramedian incision. There was gas in both the large and small bowel. A diagnosis of a pelvic abscess was made.

QUESTION: What would be the best method of drainage?

ANSWER: If one observes patients who have intraperitoneal infection, such as developing from ruptured appendix, by daily physical examination including rectal examinations, one can follow the development of a pelvic abscess. The rectal examination will usually show the following sequence, and it is helpful in making one sure that he is actually dealing with a pelvic abscess. On the second to the fifth postoperative day the examining finger will encounter a high lying induration with some tenderness and usually without palpable edema. With the fever continuing and the toxicity continuing, in a day or two the mass will apparently descend toward the examining finger bulging into the cul-de-sac and will usually be more indurated as it descends. Within another day or two or possibly even within the first two days mentioned above the mass will become softer, the overlying mucosa edematous and one can elicit fluctuation with the examining finger. At this stage the abscess is ripe, which actually means that the pus has descended, usually accumulated into a definite single abscess cavity, and that the small bowel has been displaced up out of the pelvis as is so well shown on the x-ray. The location of the abscess determines or limits the possible drainage routes.

It is preferable to obtain dependent drainage, to avoid draining through the peritoneal cavity with minimal danger to the adjacent bowel or bladder, and preferably without the hazard of infecting the wound with the resultant danger of hernia. When the mass presents both in the pelvis and is palpable in the abdomen it is preferable to drain the abscess either through the rectum or, in the females, through their vagina.

The agglutinated bowel and omentum usually form the upper wall of the abscess. Transvaginal or rectal drainage minimizes the chances of peritoneal contamination and injury to the bladder or bowel.

One should precede drainage by putting a catheter into the urinary bladder and, if the rectum contains much fecal material, a small soap suds enema will be helpful. The technique of drainage consists of placing the patient in a proper position where the examining finger can identify the fluctuant area, inserting a pointed hemostat along this finger and forcing it through the rectal wall into the abscess cavity. A very satisfactory drainage tube is a T-tube, cut with limbs long enough to fit easily across the abscess cavity and with a large enough caliber to give some firmness so the transverse limbs will hold the T-tube in place. The T-tube should be sutured to the skin adjacent to the anus or taped to the skin in this area. In two or three days, when the temperature has subsided and the mass has regressed in size, this tube can be removed.

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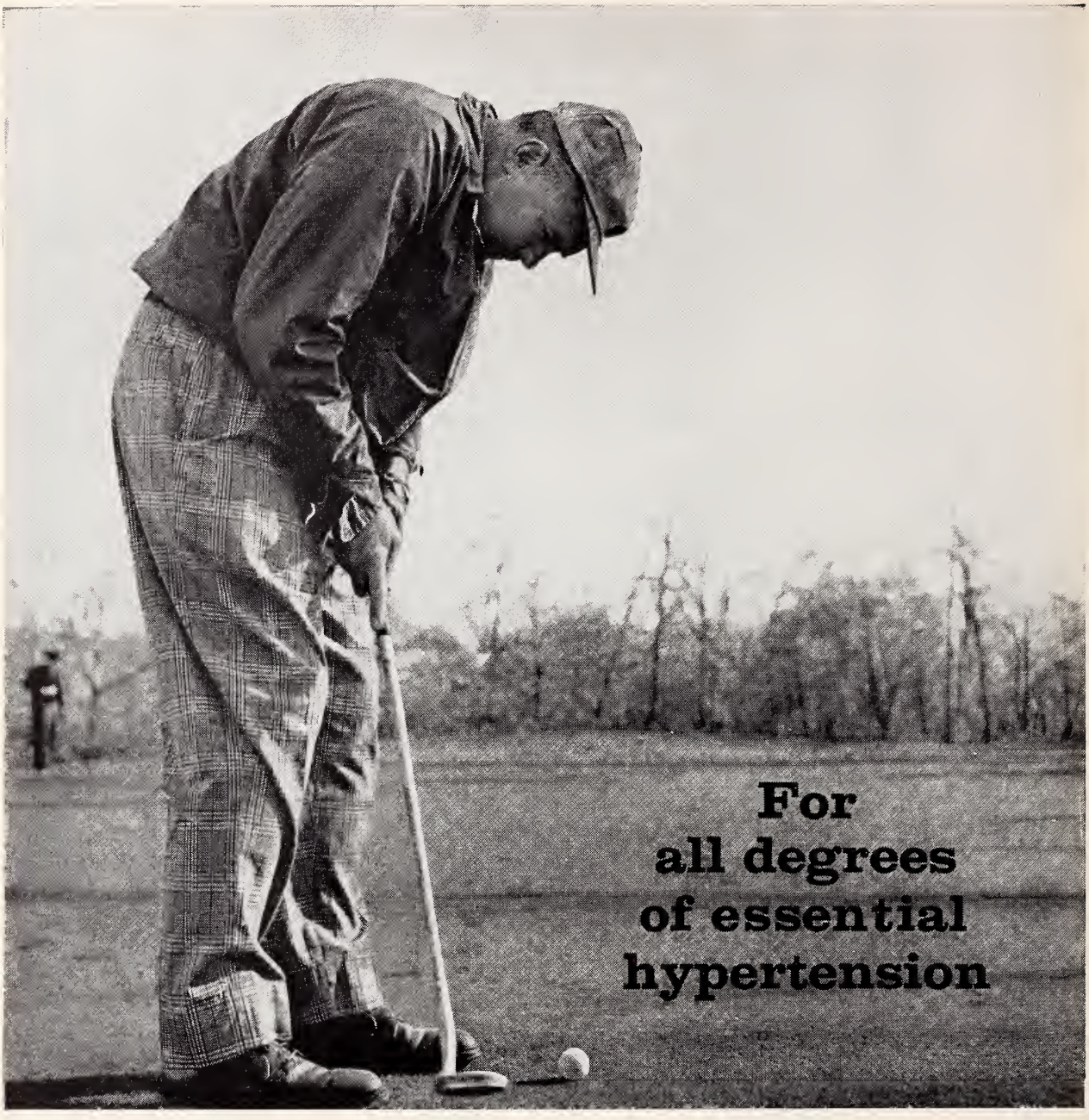
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†Hutchison J. C.: Current Therap. Res. *2*:487 (Oct.) 1960.

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Abstracts and Briefs

PATTERN OF BIOCHEMICAL RESPONSE TO ACUTE CHANGE IN PLASMA CO_2

Acid-base balance shifts occur more commonly with modern usage of controlled artificial ventilation during general anesthesia, than with pump oxygenators. The decrease in blood carbon dioxide levels is associated with the elevation of lactic acid and calcium and a decrease in potassium and phosphorus in plasma bicarbonate. The authors have studied these effects in a series of animal experiments in an attempt to establish a better definition of the changes. They produced acute alterations in plasma carbon dioxide by hyperventilation. They found the typical syndrome to be one of an increase in blood lactic acid and calcium with significant onset appearing in the first 10 to 20 minutes and reaching a maximum in 30 to 60 minutes after beginning hyperventilation. A continuation of the production of hypocarbia to four hours did not produce a significant progression.

In the recovery period after two hours of hyperventilation, an overcompensation towards acidosis would appear, and the recovery, although progressing toward normal, had not been complete at the end of four hours.

When hyperventilation with carbon dioxide-oxygen mixtures induced a hypercarbia, a syndrome opposite that with hypocarbia was observed and the hyperventilation hypocarbia recovered more rapidly than in the case of spontaneous recovery. The simple hyperventilation had been obtained by setting the regulating mechanism of the ventilator at higher levels of respiratory rate breathing air.

Such studies as this develop a better understanding of the physiologic changes induced by present day methods of anesthesia and artificial circulation. It is important to evaluate the bicarbonate loss and organic acid accumulation which produce a favorable condition for subsequent acidosis in the event of failure of adequate compensation, and a realization that a prolonged respiratory alkalosis may ultimately develop a metabolic acidosis.

Carl O. Rice, M.D.
Minneapolis, Minnesota

Murray and Anderson, Hans Svane; Ann Surg. Vol. 156:752 1962

COMMON DUCT STONES

The subject under review is unique in that it concerns the condition of choledocholithiasis in the absence of stones in the gallbladder. The report is documented so that surgeons will recognize this possibility, rare though it be.

The author reports details of ten cases of common duct stones in patients whose gall bladders contained no stones. The cases were collected from a series of 690 patients having primary operations for gallstones. In the series a total of 135 patients had common duct stones.

Three possible mechanisms are suggested: 1.) Stones form in the gall bladder but pass through the cystic duct into the common bile duct. 2.) Stones may have been present in the gall bladder, but passed through a spontaneous fistula. 3.) Stones apparently formed in the common bile duct.

The gallbladder in the ten patients was distended in two, shrunken and/or thickened in six, and apparently normal in two. The cystic duct was enlarged in most of the patients, but an abnormally tight Sphincter of Oddi was found in only three. Operative cholangiograms showed evidence of stones in eight. The other two demonstrated evidence of obstruction requiring exploration. The common duct was dilated, thickened, or both in all cases.

The wide variety of pathological combinations to be found in the biliary tree makes this field of surgery particularly intriguing. An attitude of bored routine must never replace the interested awareness of congenital developmental abnormalities, normal anatomical variations, and unusual manifestations of secondary physiological and pathological alterations. Basic knowledge of possible variations, meticulous technic, and wise use of supplementary laboratory and radiological methods can make biliary surgery particularly gratifying, and one can be assured that there will always be something new with a potentially satisfactory solution.

Robert N. Hammerstrom, M.D.
Minneapolis, Minnesota

Hoerr, S. O. "Stoneless Gallbladder but Stones in the Common Bile Duct" Arch Surg 85:821 November, 1962

Continued

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Literature available on request.

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SMOKE POISONING

Calcium carbonate and glycine may do much more for the victim of smoke poisoning than the conventional administration of oxygen, the author believes. In his opinion, the problem is one of ingestion rather than inhalation; consequently administration of oxygen is a futile gesture except where carbon dioxide blood levels are dangerously high. He does not mean to imply that the ingestion of calcium carbonate tablets is a cure-all in combating the effects of gases, fumes, and solvents which firemen may encounter in fighting all types of fires, but he believes it offers a solution to the smoke poisoning problems associated with the average house or cellar fire. But even in chemical fires, he says, much of the material is swallowed in the body's effort to avoid inhalation, and administration of this simple medication will go a long way in correcting the ill effects of the ingested toxins.

In an atmosphere of heavy smoke the fireman does not inhale much; he gulps and swallows. As a result, much of the products of combustion enter his stomach rather than his lungs. The by-products of burning rubber, wood, etc., are complex acids swallowed in bodily effort to avoid inhaling them. These acids penetrate the blood stream, and the result is the familiar nausea, vomiting, pallor, weakness, and collapse. The objective of treatment, the author believes, is the neutralization of these acids as they are swallowed, by giving the tablets of calcium carbonate and glycine which can be carried by firemen, rescue workers, and other personnel subject to smoke hazards of this type. The author says he has used this method of treating smoke poisoning for many years with hundreds of firemen, and declares that he can vouch for its value and effectiveness. He says that there are thousands of fire departments in cities throughout the country where the policy is to apply oxygen whenever somebody is rescued from smoke. Except in a few cases where smoke is actually inhaled, he says, the oxygen and the effort are wasted. On the other hand, calcium carbonate to neutralize the toxic products that have been swallowed gives almost immediate relief.

Courtesy of Medical Abstract Service
Berwyn, Illinois

Levin, M. J Med Soc New Jersey, 59; 475 August 1962

TREATMENT OF BURNS

If the blistered epidermis over superficial burns is preserved, healing is quicker and cosmetically better than that achieved by exposing the burn after removal of the epidermis. Removal of the epidermis results in the formation of a thin crust of dried dermis which has died because of exposure. The minimum evaporative water loss was measured (by means of desiccator capsules) from the surfaces of dried burns and was found to be about 40 gm per sq decimeter per day. From this the daily water and calorie requirements of a burnt patient can be more accurately estimated. It is suggested that the heavy nitrogen loss may be due to excessive evaporation of water from the surface of burns denuded of epidermis.

Courtesy of References and Reviews
Journal of the American Medical Association

Forage, A. V.
Lancet 2:690 Oct 6 1962

FACIAL BURN

Nine hundred thirty-two patients with burn problems were studied. One hundred eighty-one had developed respiratory difficulties. There were 106 deaths with death in 46 of these cases attributable partially or entirely to respiratory tract damage.

The article consists of various breakdowns in terms of the percentage of body burned and areas which were burned. The observations indicated that death had a predilection for patents in whom more severe burns of the face and respiratory area had occurred. Flame burns had a greater tendency to produce respiratory damage. A history of confinement of the patient and the fire in enclosed spaces increased the respiratory hazard.

It is very often easy and perhaps natural to overlook the more serious internal damage in the respiratory tract when the more obvious problem is under direct vision. Such figures as presented in this paper serve as an excellent warning to be alerted to the more lethal aspects, i. e., damage to the respiratory apparatus, in order that an early tracheostomy may be accomplished.

J. H. Strickler, M.D.
Minneapolis, Minnesota

Ann Wight Phillips, M. D. and Oliver Cope, M. D.; Ann Surg, Vol. 156:759 1962

CANCER IN BURN SCARS

Spinocellular epitheliomas are found mainly in scars on the limbs, particularly over joints. They most often form in burns which have healed very slowly, often with chronic ulceration. Such ulcers may be malignant despite their small size. The prognosis is usually good unless metastatic spread has begun; then prognosis is very bad.

Of 19 cases 10 were in leg scars, 3 in the popliteal space, 2 in the inguinal region and 2 over the Achilles tendon; 1 was on the back of the hand and 1 on the face, none on the trunk.

Age seemed to be of no significance, for the patients ranged from 25 to 70 years old. In every case many years had elapsed between the burn and the first observed sign of cancer.

The only cure is by surgery. A wide area must be excised, for the removal of too little tissue is apt to lead to recurrence and skin-grafting can always be relied on to ensure permanent healing.

The best treatment is still prevention by putting painful scars at rest and above all by grafting burns early.

Courtesy of World Wide Abstracts
Excerpta Medica Foundation

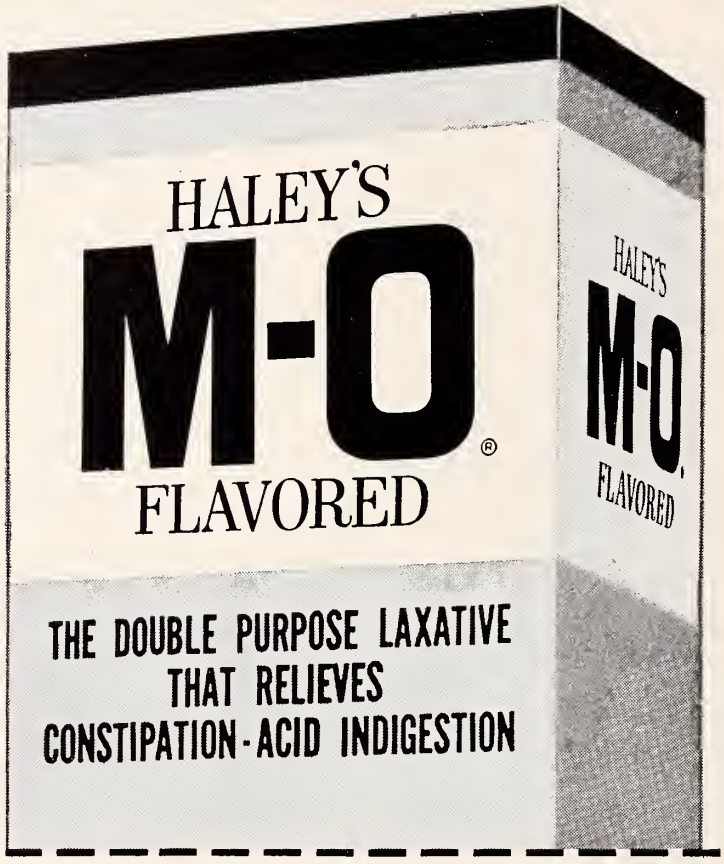
DuFourmentel, C. "Nineteen Cases of Cancer Developing After Many Years in the Young as Well as the Aged" Presse Med 70/12:567-70.

X-RAY EXPOSURE AND CANCER

The incidence of prenatal X-rays in children dying of cancer was compared to a systematic sampling of a study population. The study population consisted of all children born in and discharged alive from 37 large maternity hospitals 1947-54, located in the northeastern states. An estimated 734,243 were included for the eight-year period. Two procedures were required: (a) estimation of distribution of the study population according to the presence or absence of intrauterine X-ray exposure, and (b) follow-up to identify cases of cancer. (a) Frequency of exposure. In each hospital a

Continued

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1 per cent systematic sample of all births during the study period was selected. The author enlarges on the varieties of procedures used, adapted to the system prevailing in the particular hospital. These are not reviewed here. (b) Cancer deaths. Cancer deaths in the study population were identified through review of certificates of death and birth in the states of the Northeast Region.

It was estimated, after certain corrections for indirect associations with birth order and other complicating variables, that cancer mortality was about 40 per cent higher in the X-ray than in the non-X-rayed members of the study population. This relationship held for each of the 3 major diagnostic categories: leukemia, neoplasms of the central nervous system, and other neoplasms. The excess cancer mortality in the X-rayed group was most marked at ages five through seven years. During this period the relative risk was 2.0. This excess risk apparently was exhausted by eight years of age. A trend toward higher mortality in the more heavily exposed children was not statistically significant. No significant variation with stage of pregnancy at exposure was evident. The author's summary notes that the association of intrauterine X-ray exposure with cancer mortality does not explain the high incidence of leukemia in first births noted previously.

In 1956 and 1958 Stewart and associates reported that mothers of children dying of leukemia or other cancer recalled having abdominal or pelvic X-ray during the pregnancy involved more often than the mothers of a sample of children who did not die of cancer. Stewart and associates inferred that the incidence of cancer was approximately doubled in children exposed to diagnostic roentgen dosage while in utero. The present author reports on a study designed to re-examine the problem, using objective evidence of intrauterine X-ray exposure allowing estimates of malignant disease rates in exposed and unexposed children. In general, the word "X-ray" in this report refers to the type of abdomen and pelvic X-ray in which the fetus receives essentially direct whole-body exposure (Pelvimetry, flat plate for twins, placentography, and series studies of the intestinal or urinary tract).

Courtesy of Medical Abstract Service
Berwyn, Illinois

McMahon, Brian J Nat Cancer Inst 28:1173, 1962

COMEDONES

In all, 327 patients were studied during the minimum observation period of two to six months. Ranging between eleven and thirty years old, the patients were about equally divided between the sexes. About 95 per cent were Caucasian. Comedo counts were made by use of a 2.54 cm. square drawn on pliofilm. This square was divided into 2 mm. squares. The same skin area was used for each successive count. Sebum secretion was quantitatively determined by use of siliconized paper rubbed on a selected area of the face. This paper was then subjected to reading by densometer. The authors describe these procedures in some detail, not repeated here.

After two to six months all patients improved in some degree regardless of preparation or placebo used. No decrease in size or number of comedones was found in serial determinations using the area counter. The 215 patients who tried the various cleansing pads improved regardless of the formula (with one exception) employed on the pad. Pads containing resorcinol monoacetate had to be discontinued due to the high incidence of local irritation. All the others were acceptable to the patients, who considered them convenient, pleasant to use, and beneficial. The greater degree of improvement was probably to the latter advantages. The ease with which the pads removed the oily secretion probably encouraged their use. Results of this study suggest that preparations containing sulfur, resorcin, or combinations of these with or without hydrocortisone may not have the effectiveness against acne which has been attributed to them.

A cream base containing no active ingredients was used as a control in treating 51 patients with acne, 26 of whom (51 per cent) improved over a period of two to six months. This result compared favorably with 9 other cream base preparations containing ingredients purported to be active against comedones used in other groups of comparable size. Also, 8 different types of cleansing pads were tried for two to six months by 215 patients, showing a somewhat improved result. After studies with these preparations involving comedo counts and sebum determinations, the authors concluded that topical therapy with the preparations used in this study did not decrease the size or number of comedones during the study period, nor did it produce dramatic improvement. Sebaceous secretion was not affected, and its removal by these preparations lasted only a brief period. Creams containing sulfur, resorcin, or both, with or without hydrocortisone, were no more effective than the base alone. Except for the cleansing pads containing resorcin, which were irritating, these pads were pleasant to use and more acceptable than the other topical preparations. It appeared that rapport between the patient and physician, attention to diet, improved hygiene, and other general measures were more effective than any of the topical preparations used.

Courtesy of Medical Abstract Service
Berwyn, Illinois

Robinson, H. M., Robinson, R. C. V., and Hollander, M. B. Bull School of Med, Univ of Maryland 47:31-36 July 1962

CHLOROQUINE AND PORPHYRIA

Chloroquine is known to be of benefit in certain light-sensitive disorders but it's efficacy in the treatment of porphyria is as yet undecided. The authors present three patients with porphyria hepatica, each demonstrating an exacerbation of his disease following administration of chloroquine. In the cases presented chloroquine (0.5 gm. daily) was given in total doses of 2 gm., 2.5 gm. and 1 gm. respectively. In all cases similar clinical features of a rise in temperature, malaise, and tiredness occurred. Liver function tests were disturbed in all patients, especially the BSP and alkaline phosphatase. The urines became burgundy red and fluorescent within 3 to 4 days, demonstrating a remarkable rise in urinary porphyrins.

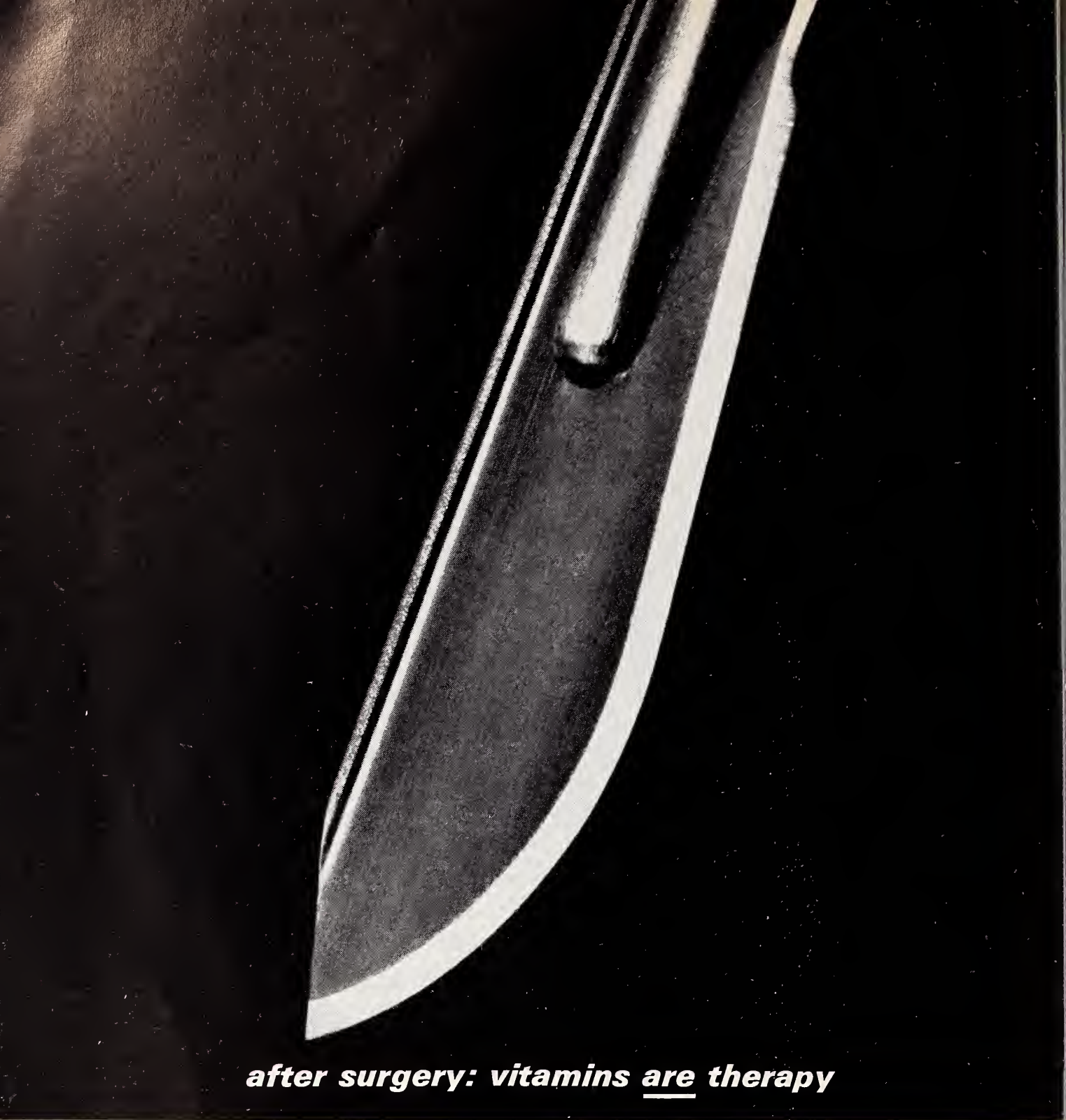
Other side effects of chloroquine commented on by the authors include vascular headaches, rhinitis, corneal and retinal changes, nausea, vomiting, diarrhea, weight loss, pruritus, drug eruptions, alopecia, depigmentation of the hair and exfoliative dermatitis.

This is an interesting discussion into the side effects of chloroquine. Also included in the paper are some valuable comments on other chemicals which have been reported as exacerbating porphyria.

Alvin S. Zelickson, M.D.
Minneapolis, Minnesota

Cripps, D. J. and Curtis, A. C.: Toxic effect of chloroquine on porphyria hepatica. AMA Arch of Derm 86:575, 1962

Continued



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EFFECT OF TRACTION DURING SURGERY

The authors have made an analysis of the cardiovascular reactions in 14 patients to manipulation during abdominal surgery. The studies consisted of electrocardiography, arterial blood pressure, and the usual pulse rate and pressure assessments. They have observed these cardiovascular reactions to be ones of reflex vagal bradycardia and a more or less generalized inhibition of tonic sympathetic activity.

Adequate stimuli to production of these reactions resulted from traction on the mesentery, distention of hollow organs, and also by direct electrical stimulus to the central ends of nerve fibers running to these organs.

The authors caution against injudicious use of blood plasma to combat this phenomenon and recommend that if the stimulating traction and manipulation cannot be avoided, the reflex may be broken by blocking the regional sympathetic plexa with local anesthesia.

This article serves to reinforce existing knowledge and is a useful reminder on the use of regional sympathetic blockade when such reflex reactions are troublesome during abdominal surgery.

J. H. Stricker, M. D.
Minneapolis, Minnesota

Falkow, B., Galin, L.B.; Lindell, S. E.; Stenberg, K., Thoren, O.; Ann Surg; 156:905, 1962

COLON POLYPS

To clarify the relationship between adenomatous polyps and carcinoma of the colon, 60 previously reported cases of "carcinomatous polyps" were clinically and histologically re-evaluated. This study, combined with an appraisal of the literature on the subject and the general experience wih polypoid tumors at the Massachusetts General Hospital, led to the conclusion that the adenomatous polyp is a lesion of negligible malignant potential. The tendency of adenomatous polyps to become malignant has been exaggerated in the past because of the inclusion of papillary adenomas and polypoid carcinomas in the statistics. Metastasis from lesions on a true stalk, regardless of histology, is extremely rare. Adenomatous polyps with epithelial atypicality should not be diagnosed as carcinoma and should always be treated conservatively. The overwhelming majority of cancers of the colon arise as cancer **de novo** or in papillary adenomas, not in adenomatous polyps.

Courtesy of References and Reviews
Journal of the American Medical Association

Castleman, B. and Krickstein, H. I.
New Engl J Med 267:469 Sept. 6, 1962

ABDOMINAL EXAM

A technique is described for differentiating the tenderness arising in the abdominal wall from that arising in intra-abdominal structures. The degree of tenderness is compared with the abdominal wall when relaxed and when contracted by having the recumbent patient raise head and shoulders slightly from the table. Tenderness arising in intra-abdominal structures is decreased by the latter maneuver; that arising in the abdominal wall is increased.

Courtesy of References and Reviews
The Journal of the American Medical Association

Barondess, J. A. New Engl J Med 267:822 Oct. 18, 1962

SELECTIVE VAGOTOMY

The development of appropriate surgical approaches to management of the medically intractable or complicated peptic ulcer has been intensely studied for several decades. Modifications are continually being proposed in the attempt to obtain complete control of the ulcer diathesis without objectional side effects. The authors believe that selective gastric vagotomy avoids the undesirable diarrhea and distention noted by some patients after standard vagus nerve interruption.

In their study of a series of 40 cases treated by selective vagotomy the authors conclude that the risk is no greater, the ulcer control is satisfactory, and there is less post-vagotomy diarrhea and distention.

The anatomy of the vagus nerves and the technic for preservation of the celiac and hepatic branches are described.

The theoretical considerations in the above study appear sound and appropriate to the problems discussed. However, one has only to recall the bewildering and contradictory literature relating to vagotomy to be willing to leave the evaluation of this refinement to the academic clinicians. Most probably the success of this refinement will be limited to those "who really know how to do it."

Robert N. Hammerstrom, M.D.
Minneapolis, Minnesota

Kraft, R. O., Fry, W. J., and Ransom, H. K. "Selective Gastric Vagotomy" Arch Surg 85:687 Oct. 1962

INTRAVENOUS FAT

The authors urge that more attention be paid to the correction of malnutrition in the geriatric patient who is about to undergo surgery. They have used an intravenous fat emulsion (Lipomul I. V.) with success.

This paper concerns the following subjects: causes of malnutrition; physiologic differences between the young and the aged; methods of correcting malnutrition; added precautions in preoperative and postoperative care; comparison of operative mortality rates in patients over 60 with those in patients under 60; and the age of patients undergoing major operations. The correction of malnutrition apparently explains the sharp reduction of surgical mortality rates from those 20 to 30 years ago.

Oral feeding alone will seldom be successful in achieving a gain of weight if the patient has an ulcerating lesion in the gastrointestinal tract. Intravenous feeding will be required when the patient cannot eat enough food to gain about 5 pounds in 5 or 6 days. It is often possible to take 800 to 900 calories daily by mouth and to administer an equal amount at night by drip feeding through a soft plastic tube leading into the stomach through the nose. An example is given in which 7 pounds was gained in 6 days and operability was improved markedly when a patient with a carcinoma of the sigmoid was given an average of 4,075 calories per day for 6 days. This was done with a combination of oral and tube feeding with Lipomul, glucose, and amino acids. A suggested combination for intravenous feeding is 1,000 ml. of 5 or 10% glucose, 1,000 ml. of 10% carbohydrate and amino acids, and 500 ml. of Lipomul.

Courtesy of Farley Manning Associates
New York, New York

Cole, Warren H.; Harridge, William H.
J Amer Geriat Soc 9:16-24 January 1961

Continued



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Soma relieves stiffness —stops pain, too

YOUR CONCERN: Rapid relief from pain for your patient. Get him back to his normal activity, fast!

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> Kestler reports in controlled study: *Average time for restoring patients to full activity: with Soma, 11.5 days; without Soma, 41 days.* (*J.A.M.A. Vol. 172, No. 18, April 30, 1960.*)

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STREPTOMYCIN IN PREGNANCY

Ten children between the ages of 7 and 11 years, whose mothers had received streptomycin therapy for pulmonary tuberculosis during pregnancy, were given a thorough audiologic examination. With one exception, the mothers were also examined. Each child was tested audiometrically 3 times, at 15-day intervals. Entirely normal hearing was demonstrated in 7 children. Chronic suppuration of the right ear, with a moderate hearing deficit revealed by audiometric tests, was observed in an 11-year-old girl. The left ear was healthy and showed no hearing loss. A 7-year-old girl, whose mother had died of tuberculosis 2 months after childbirth, had moderate, bilateral, symetrical hearing deficit. This child, born prematurely, had received streptomycin therapy for tuberculosis during her entire first year of life. The third child with hearing impairment, a 7-year-old boy, had always been healthy, except for a delay in developing speech and for a slow progress at school. The audiologic examination revealed bilateral deafness, more pronounced on the right side, with characteristics suggestive of deafness of a toxic or infectious etiology. The mothers, in spite of the high total dose of streptomycin received in the past, showed no hearing impairment. The authors conclude that of the 3 children found with hearing deficit, in only one could deafness be related to streptomycin treatment received by the mother during pregnancy. They believe that such an audiotoxic effect on the fetus is exceptional, but that the possibility of the occurrence of this damage should be taken into consideration in the treatment of a pregnant woman.

Courtesy of References and Reviews
Journal of the American Medical Association

Lenzi, E. and Ancona, F.
Riv Ital Ginec 46:115 no. 2 1962

CESAREAN HYSTERECTOMY

In 18,613 deliveries, occurring during the 10 years from 1952 through 1961 in the White Memorial Hospital in Los Angeles, there were 1,025 cesarean sections, 62 cesarean hysterectomies (12 of them subtotal), and 109 cesarean tubal ligations. During the first 5-yr. period the incidence of cesraean section tubal ligations was 14% while the incidence of cesarean section hysterectomies was only 4%. During the second 5-yr period the number of cesarean section tubal ligations had decreased to 7.9% while the number of cesarean section hysterectomies had increased to 7.7%. In difficult cases, tubal ligation should still be preferred because it is the less serious intervention. Several other surgical procedures, mostly appendectomies, were performed at the time of cesarean section hysterectomy. Nine of the patients had the fourth cesarean section and 2 had the fifth. The author thinks that 3 cesarean sections need not be the limit if the uterine wall is intact. In patients with dense adhesions and increased vascularity a subtotal hysterectomy was done. There was no maternal mortality. The 4 fetal deaths were unpreventable. In the hands of a competent surgeon and in the well-chosen case, a total hysterectomy at the time of cesarean section is a safe procedure.

Courtesy of References and Reviews
Journal of the American Medical Association

Larsson, E. J. Amer Med Women's Assn 17:720 Sept 1962

HEARTBURN IN PREGNANCY

Heartburn was defined for a study of heartburn in pregnancy as a burning sensation in the throat or substernal area or both. Choking, gagging, belching, epigastric pain or bloating and pressure sensations were not considered heartburn.

Of 563 women, 274 reported the symptom during pregnancy and adequate data were obtained from 203. The stage of pregnancy when the symptom occurred was as follows:

In 40 percent persistent episodes of heartburn occurred at least four or five times a week; often these were women over 30 or those with unwanted pregnancies. The symptom was not related to parity, race or socioeconomic status or family history or peptic ulcer, heartburn or gallbladder disease. In 25 women it disappeared after the fourth month, but in 19 it reappeared after the middle trimester.

Heartburn in early pregnancy was often substernal and not accompanied by acid regurgitation. It was often relieved by antacids. Nausea, vomiting and headaches were common. Heartburn which started after the fourth month was more persistent and in half the patients was accompanied by acid regurgitation; antacids were usually temporarily effective. Nausea, vomiting and headaches were rare. In both early and late types the heartburn usually came on in the evening when the patient lay down, especially after supper.

Spontaneous relief in the last weeks of pregnancy was noted by 37 of 53 primiparas and 54 of 150 multiparas. After delivery 199 did not have any more heartburn.

Three quarters of the late pregnancy cases can be relieved by any form of antacid. Tranquilizers are a useful adjunct, as is elevation of the head of the bed and avoidance of large meals.

Courtesy of World Wide Abstracts
Excerpta Medica Foundation

Nagler, R., Spiro, H. "Analysis of Two Hundred Cases; Antacids Relieve Most and Tranquilizers May Help"
Amer J Dig Dis 7/7:648-55

OBESITY AND PREGNANCY

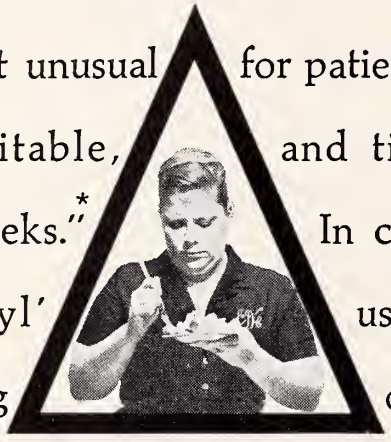
From the case notes of 3,000 consecutive deliveries, 1,145 were selected for a study on obesity and its consequences on pregnancy. Every fifth of those investigated was considered to be overweight according to the criteria accepted for the purpose of the investigation. In obese women pregnancy was more likely to be attended by essential hypertension and preeclamptic toxemia; malpresentations were more frequently overlooked and when diagnosed, they were more difficult to correct; antepartum hemorrhage occurred more often. Labor was induced more frequently in such patients, was more likely to be prolonged in both the primigravida and the multipara, and resulted often in delivery either by forceps or by cesarean section. Postpartum hemorrhage was also more common. Fetal loss was much higher in these patients; their infants were larger, and breast-feeding failed more often.

Courtesy of References and Reviews
Journal of the American Medical Association

Emerson, R. G.
Brit Med J 2:516 Aug. 25 1962

Continued

WHAT IS SO IMPORTANT ABOUT THE MOOD-ELEVATING EFFECT OF DEXAMYL® IN OVERWEIGHT?



"It is not unusual for patients on a low-calorie diet to feel low, irritable, and tired during the first two or three weeks."* In contrast, the dieting patient on 'Dexamyl' usually gains a brighter outlook, a feeling of energy and general well-being, and, most important, confidence that she really can lose weight after all! In addition to its mood effect, one 'Dexamyl' Spansule® sustained release capsule taken in the morning effectively curbs appetite all day—both at and between meals.



Matlin, E.: The Obvious in Obesity, Clin. Med. 8:1071 (June) 1961.

FORMULA: Each 'Dexamyl' *Spansule* capsule No. 2 contains 15 mg. of Dexedrine® (brand of dextro amphetamine sulfate) and 1½ gr. of amobarbital, derivative of barbituric acid [Warning, may be habit forming]. Each 'Dexamyl' *Spansule* capsule No. 1 contains 10 mg. of 'Dexedrine' (brand of dextro amphetamine sulfate) and 1 gr. of amobarbital [Warning, may be habit forming]. The active ingredients of the 'Spansule' capsule are so prepared that a therapeutic dose is released promptly and the remaining medication, released gradually and without interruption, sustains the effect for 10 to 12 hours.

INDICATIONS: (1) For control of appetite in overweight; (2) for mood elevation in depressive states.

USUAL DOSAGE: One 'Dexamyl' *Spansule* capsule taken in the morning for 10- to 12-hour therapeutic effect.

SIDE EFFECTS: Insomnia, excitability and increased motor activity are infrequent and ordinarily mild.

CAUTIONS: Use with caution in patients hypersensitive to sympathomimetic compounds or barbiturates and in coronary or cardiovascular disease or severe hypertension.

SUPPLIED: Bottles of 50 capsules.

Smith Kline & French Laboratories *Prescribing information October 1962*

PAINFUL TERMINAL SPINE

Margo reviews 318 cases of painful terminal spine, 234 of them in women. They included simple or comminuted fractures of the coccyx, ligamentous tears or ruptures in the sacrococcygeal area, congenitally deformed coccyx and coccygodynia from trauma or other causes. Most of the patients were treated conservatively but some required surgery for relief of pain. Dislocation was much more common than fracture.

Anteroposterior x-ray films often fail to reveal any abnormalities in these cases, so lateral views are essential. Dislocation of the coccyx may occur in pregnancy, especially in the last trimester, but it may then go unnoticed for weeks or months until the patient is more active.

Untreated coccygeal injuries often cause constant pain which may lead to drug addiction, constipation and psychoses. In young women it may result in serious pain during pregnancy or labor.

The main indication for removal of the coccyx is fracture or severe coccygodynia, usually resulting from trauma. Since the symptoms are often obscured by neurosthenia the characteristic local signs should be depended on when choosing cases for surgery. Pain on pressure is usual, and crepitus or false movements may be elicited by rectal examination or external pressure on the coccyx.

Signs indicating that a coccyx should be removed are bone which is movable against the sacrum, tenderness at the sacrococcygeal junction, sharp pain on construction of the perineal muscles when arising from a seated position, and bony crepitus.

In 274 cases, conservative treatment, consisting of the use of pneumatic cushions, hot sitz baths, injections and so on, ensured rapid healing without subsequent disability. The 44 patients treated by coccygectomy also responded well.

Courtesy of World Wide Abstracts
Excerpta Medica Foundation

Margo, E., "A Review of 318 Cases Resulting from Various Causes; Most Respond to Concervative Therapy" Southern Med J 55/5:461-69

ARTHROGRAPHY OF THE KNEE

Arthrography of the knee joint was performed in over 200 cases with a contrast medium. No untoward reactions occurred and in no instance did infection develop. One-hundred sixty-five of the series were followed and 70 of these came to surgery. The predominant pathological findings involved the menisci, with 40 medial and 5 lateral tears. Correlation between the arthrographic and operative findings revealed 7 discrepancies, only 2 of which occurred in the later half of the series. The procedure represents a significant improvement over clinical observations for diagnosis. In the presence of atypical signs and symptoms it affords information as to the status of the menisci and ligaments, the integrity of the joint capsule, and possible multiplicity of lesions. It permits immediate evaluation of the degree of internal damage following trauma and may indicate the nature of a mass about the knee joint. With failure to demonstrate meniscal lesions unnecessary surgery may be avoided. The authors warn that knee joint arthrography is not a casual undertaking to be performed by the inexperienced.

Courtesy of References and Reviews
Journal of the American Medical Association

Heiser, S., LaBriola, J., and Meyers, M.
Radiology 79:822 Nov. 1962

MALLET FINGER

The term mallet finger, which is a misnomer, has come to mean a deformity resulting from a loss of extensor tendon continuity to the distal finger joint. It is important to distinguish the cause of the deformity because the treatment and prognosis vary. During a 13-year period the authors have seen 161 patients (163 fingers) with a chief complaint of a dropped finger resulting from a closed injury. The major hand was involved in two-thirds of the patients. A chart indicating the distribution of the finger involvement shows that the middle finger and the little finger were most frequently involved. The thumb was involved in none of the patients; mallet thumb is rare. There were 100 men and 61 women. Trivial trauma was the cause in two-thirds of the women, and it was relatively frequent over age 35 in both sexes. It seems likely that aging is associated with weakening of the extensor tendon. Reported methods of treatment include plaster immobilization, ingenious splints, external tendon suture, Kirschner-wire immobilization of joints, and open tendon suture. Several authors have adopted a conservative policy. If treatment is not given, the eventual disability is slight; there will be some loss of voluntary extension of the distal joint, but flexion will usually be complete and grip will be normal. If treatment is undertaken at all, it should not risk making the disability worse. Open surgery, or any method which converts a closed to an open wound should not be used routinely. Treatment, if any, was limited by the authors to 6 weeks' immobilization of the distal joint with a short metal splint. Middle joint immobilization should be avoided. Older joints stiffen quickly and conservative methods must be used. Safe, conservative, and time-tested methods of treatment which eliminate catastrophic complications are described.

Courtesy of References and Reviews
Journal of the American Medical Association

Stark, H. Boyes, J., and Wilson, J. J. Bone Joint Surg 44A:1061 Sept 1962

OSGOOD-SCHLATTER DISEASE

The case histories of a series of 170 pediatric patients who had osteochondrosis of the tuberosity of the tibia (Osgood-Schlatter disease), but who were, on the whole, otherwise normal and healthy, are reviewed. The series included 102 boys and 68 girls; the mean age at the time of the initial examination was 12 years and 5 months. Only the right knee was involved in 47 patients and only the left knee in 75; the lesion was bilateral in 48. Symptoms, which consisted of pain, swelling, and tenderness over the tibial tuberosity, were associated with injury in 82 cases; 88 patients could recall no associated injury. The knee joint was intact and fully mobile. Roentgenologic examination was helpful in confirming diagnosis. Of the 218 knees treated, 144 (133 patients) were immobilized in plaster, usually for 4 to 6 weeks. Thirty patients were treated without and 7 with only partial immobilization. Surgery, mainly to obtain biopsy material, was performed on 18 knees. In the cases without immobilization of the knee, half of the lesions healed with significant deformity of the tuberosity or ossicle formation, whereas this picture was seen in only one third of the plaster-treated group. Duration of symptoms was reduced by an average of 9 months in the patients treated by immobilization.

Courtesy of References and Reviews
Journal of the American Medical Association

Ehrenborg, G.
Acta Chir Scand 124:89 Aug. 1962

End



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Special Articles

H. R. 10*

JULE M. HANNAFORD, L. L. B.**
Minneapolis, Minn.

On October 10 the President signed the Self-Employed Individuals Tax Retirement Act of 1962. It has been reported he signed it over the objections of the Treasury Department and only because he realized that if he vetoed it, its supporters had the votes to pass it over his veto.

The long and impressive name chosen for this Act does not accurately convey its significance. The act stems from the more than 10-year campaign of professional men to gain tax equality for themselves in the retirement plan field through enactment of H. R. 10, commonly known as the Keogh-Smathers Bill. However, the Act that was signed by the President bears little resemblance to H. R. 10 as originally proposed.

A short history of this Act's stormy passage through Congress will be helpful in understanding the provisions of the Act as finally passed and may indicate possible future attitudes of the Treasury Department toward it and toward professional associations and corporations organized under state statutes passed in the last two years.

History

H. R. 10 originally was quite simple. It provided that each self-employed individual could deduct, in computing his income subject to federal income taxes, amounts deposited in a fund to provide retirement income for himself. The deduction for any year was limited to 10 per cent of an individual's net income or $2500, whichever was the smaller. There were certain provisions in H. R. 10 governing the use that could be made of the fund to make sure it was used for retirement, disability, or death benefits, but practically no other restrictions. In such form it passed the House in 1957 and again in 1959, in each case over the objections of the Treasury Department.

While these developments were taking place, developments were also taking place in a related field of tax law. Professional men — principally physicians — began to form unincorporated associations and claim such organizations should be taxed as corporations so that retirement plans could be adopted covering not only the employees of such organizations but also the associates. By the end of 1959 two court decisions had been handed down holding that physicians might do so, in each case again over the objections of the Treasury Department. The decisions to which I

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*Manuscript for talk delivered before annual meeting of National Association of Clinic Managers on October 23, 1962.

**Member of the Minnesota Bar and Senior Partner in the firm of Dorsey, Owen, Marquart, Windhorst and West.

refer are the *Kintner* case and the *Galt* case.

Toward the end of 1959 the Senate Finance Committee requested the Treasury Department to present a substitute for H. R. 10 which would grant the self-employed some tax equality and would be acceptable to the Treasury. Following receipt of this request the Treasury took two steps. First, it issued proposed regulations designed to prevent most unincorporated associations from being taxed as corporations. Second, it submitted a substitute for H. R. 10.

In its substitute the Treasury stated that it objected to H. R. 10 in its original form because it permitted the self-employed to make contributions to retirement plans for their own benefits without making comparable contributions for the benefit of their employees. This, the Treasury said, would create a precedent for allowing individuals to take tax deductions for sums set aside for retirement, even though historically such favorable tax treatment had been allowed only in the case of non-discriminatory plans for the benefit of employees. The Treasury feared that, on the basis of such precedent, executives and union members would ask for a tax deduction for sums they set aside for their retirement. Accordingly, the Treasury proposed that the self-employed should not be granted the benefits of H. R. 10 unless they established retirement plans covering their employees on some sort of a non-discriminatory basis and with appropriate safeguards.

If the Treasury had stopped its proposal for an alternative to H. R. 10 at this point, the Act would probably have passed in 1960. Unfortunately, the Treasury went further and made several suggestions for change in the then existing tax laws which would have had adverse effects on then existing retirement plans of corporations.

First, the Treasury took the position that an owner-manager of a corporation (a term subsequently defined as one who owns more than 10 percent of the voting stock of a corporation) should thereafter be treated the same as a self-employed person and that retirement plans adopted by corporations which had an owner-manager should be subject to all the restrictions applicable to retirement plans adopted by the self-employed. This would have meant, for example, that a corporation could not contribute to its retirement plan on behalf of an owner-manager more than $2500 per year.

Second, the Treasury took the position that the capital gains treatment for lump sum distributions from retirement plans was not justified and should not be available either for retirement plans of the self-employed or for retirement plans of corporations.

Third, the Treasury took the position that the exemption from the federal estate tax of sums paid from retirement plans to heirs of a deceased employee was not justified and should not be available either for retirement plans of the self-employed or for retirement plans of corporations.

The Senate Finance Committee reported H. R. 10 to the Senate on June 17, 1960, with an amendment making the Treasury's first proposal applicable to all retirement plans and the Treasury's second and third proposals applicable to retirement plans for the self-employed. Largely because of the opposition that developed to the Treasury's first proposal, H.R. 10 was not brought up for consideration by the whole Senate before Congress adjourned in the fall of 1960.

At this point in time the Treasury did not have a law severely restricting the right of the self-employed and of corporations with a 10% stockholder to adopt retirement plans and it was being beseiged by requests from unincorporated associations and partnerships to adopt retirement plans covering partners and associates. As a result it issued in final form on November 15, 1960, the now famous or, if you prefer, infamous Kintner regulations. They were artfully drafted to prevent most unincorporated associations and partnerships from adopting retirement plans covering associates or partners — apparently in an attempt to forestall such action by unincorporated associations and partnerships of professional men at least until the Treasury's substitute for H. R. 10 could be passed and the law would severely restrict their freedom of action.

When the 87th Congress convened in January 1961, H. R. 10 was promptly reintroduced. The House Ways and Means Committee acted favorably on the bill in May 1961 and the Senate Finance Committee in September 1961. Both the House and Senate Committee versions of the bill made the three Treasury Department proposals mentioned above applicable only to retirement plans covering the self-employed. Neither Committee tried to make the proposals applicable to corporate retirement plans.

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H. R. 10 again passed the House in the summer of 1961, but the first session of the 87th Congress adjourned that year before it could be brought before the whole Senate. It did not come before the Senate for consideration until early in September 1962. At that time Senator McCarthy of Minnesota proposed an amendment which restricted contributions to corporate retirement plans for the benefit of an owner-manager to $2500 per year and Senator Gore of Tennessee proposed amendments which eliminated the capital gains treatment and estate tax exemption for distributions from all retirement plans. These amendments, which embodied the three Treasury proposals, were adopted on the floor of the Senate before H. R. 10 was finally passed by the Senate on September 7, 1962.

The opposition that developed to these amendments of Senator McCarthy and Senator Gore was tremendous and in the conference between the House and Senate they were eliminated. As a result none of the Treasury's proposals and none of the other restrictions apply to corporate retirement plans in the Act as repassed by both Houses and finally signed by the President on October 10, 1962; they apply only to retirement plans of the self-employed.

Effective Date

H. R. 10 is effective only with respect to taxable years beginning after December 31, 1962. Clinics on a calendar year basis will not, therefore, be able to take advantage of the law until 1963. Clinics on a fiscal year basis will not be able to take advantage of the law until the start of their first fiscal year beginning after December 31, 1962. For clinics with a September 30 closing, for example, this will mean they cannot take advantage of the law until October 1, 1963.

The Provisions of H. R. 10

H. R. 10 has created three categories of qualified retirement plans. The first is one covering plans adopted by corporations and organizations eligible to be taxed as corporations. The second is one covering plans adopted by a partnership or an unincorporated organization in which no partner or owner has more than a 10% interest in the assets or the profits of the organization. The third is one covering all other unincorporated organizations. The second and third categories are new ones that have been created by H. R. 10 and in each a partner is treated as an employee for the purpose of establishing retirement plans. These two new categories draw a distinction between big and small unincorporated organizations. All partnerships with nine or less partners will have a partner who has more than a 10% interest and will, therefore, fall into the third category. Only a partnership with ten or more partners can possibly qualify in the second category as a firm in which no person has more than a 10% interest in the assets or profits. This distinction between large and small unincorporated organizations is not merely one of terminology. The substantive provisions of the law differ depending on the category into which an organization falls. Corporations receive more favorable treatment than partnerships and large partnerships receive more favorable treatment than small partnerships. The discrimination against the self-employed still remains and it is particularly severe for the small partnerships.

Perhaps the best way to understand the restrictive provisions of H. R. 10 is to look at the requirements imposed by law upon retirement plans and compare how these requirements differ from category to category.

Coverage

The number of persons covered by a retirement plan has an important effect upon its costs. The law for years has required that employees must be covered on a non-discriminatory basis, but the rules against discrimination have not been too hard to live with.

Plans adopted by corporations have traditionally been permitted to exclude from coverage part-time and seasonal employees — those who work less than 20 hours a week or 5 months a year. This right is also granted by H. R. 10 to both large and small partnerships.

Plans adopted by corporations also have traditionally been permitted to exclude from coverage employees with less than 5 years of service and those who have not reached a particular age. Many corporate plans, for example, require for eligibility 5 years of service, plus the attainment of age 30 for males or age 35 for females. By adopting such provisions a corporation may cut down its coverage substantially and thereby reduce the costs of its retirement plan. Corporations may continue to use such eligibility tests. Large partnerships without a 10% partner may also do so.

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However, small partnerships which have a 10% partner may not do so. They will be required to cover all employees with 3 years or more of service and will not be able to exclude employees with 3 or more years of service who have not reached some minimum age. As a result, small partnerships which wish to adopt a plan covering their partners will in most cases have to cover a larger percentage of their employees than do large partnerships or corporations.

Corporations also have traditionally been permitted to limit the coverage of their plans by excluding from coverage hourly paid workers and by covering only salaried employees. This device for limiting coverage will be available to corporations and to large partnerships who do not have a 10% partner. However, a small partnership which has a 10% partner will not be able to use this device to exclude from coverage anyone who has three or more years of service. This rule will also force small partnerships to cover a larger percentage of their employees than large partnerships or corporations.

One point in connection with such means of limiting coverage should be borne in mind. If a group desires to adopt a years of service test for eligibility, the test must apply to both partners and employees. A group will not be permitted to adopt a rule requiring for eligibility 3 years of service by an employee and 1 year of service by a partner. However, there is no prohibition against counting for the purpose of establishing eligibility for either partners or employees years of service with the partnership prior to the passage of H. R. 10. The same result would not ensue were a group to reorganize under one of the professional association or corporation acts. If a group were to do so, the years of service with the prior partnership could be counted by employees for the purpose of establishing eligibility but could not be counted by partners for this purpose. Thus, groups who reorganize under professional association or corporation acts will not be able to adopt a years of service test for eligibility unless the physicians who were formerly partners are willing to wait for coverage of themselves until they have served a probationary period as employees of the professional association or corporation.

The only way for a group to avoid these restrictive rules on coverage and to have a plan covering only physicians is to adopt a policy of discharging each non-professional employee just before he has had 3 years of service with the group. Obviously, this is hardly a practical personnel policy to follow.

There is another requirement with respect to coverage that applies to a small partnership with a 10% partner. If a partner or a group of partners in such a partnership owns more than a 50% interest in the capital or profits of another partnership, the first partnership cannot adopt a plan covering its partners unless the second partnership also adopts a plan covering its employees and the plan provides for the employees of the second partnership benefits as favorable as those provided for the employees of the first partnership and its partners. This requirement will prevent a small medical group from excluding its non-professional personnel from coverage by forming two partnerships — one of which practices medicine, and the other of which owns the equipment, employs the non-professional personnel and makes both available to the first partnership for a fee. Whether the result would be the same were the second firm a corporation rather than a partnership is uncertain.

One final provision with respect to coverage should be mentioned. If a small partnership adopts a retirement plan, no contribution or benefit may be made or provided for a 10% partner unless he consents thereto. As a result, a small partnership will be able to allow each partner who has more than a 10% interest in the capital or profits to decide whether or not he wishes to be covered under its plan. The Act contains no comparable provision for partnerships which have no 10% partner. If any such partnership desires to adopt a plan covering any partner, I am afraid it will have to cover all partners on a non-discriminatory basis and will not be permitted to allow each partner to decide whether or not he wishes to be covered.

Vesting

Vesting is a convenient word used to describe what happens to contributions made to a qualified retirement plan for an employee who quits or is discharged prior to his normal retirement date. It is not uncommon to provide in re-

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tirement plans that such an employee forfeits all or part of what has been contributed for him unless he has been employed a specified number of years. For example, a plan might provide that an employee who quits or is discharged before he has been under the plan one year takes nothing with him, and that for each year of coverage under the plan in excess of one he takes 10% of the contributions made for his benefit. Forfeitures resulting from such a provision can amount to a considerable sum of money where a firm has a large number of women employees who normally quit when they get married. Such sums can be used to considerable advantage in the case of both pension and profit sharing plans to reduce future contributions by the employer or, in the case of profit sharing plans, to increase the benefits for those employees who remain until normal retirement date. Corporations and large partnerships which do not have a 10% partner are free to adopt such vesting provisions if they so desire. However, small partnerships with a 10% partner must provide in their plans that contributions for their employees are non-forfeitable when made. H. R. 10 does contain a provision that the Secretary of the Treasury by regulations may relieve small partnerships from this provision if appropriate provision is made to prevent forfeitures from accruing to the beneft of partners and highly compensated employees. When the Secretary of the Treasury will get around to issuing such regulations, no one can tell.

While these requirements for vesting may increase costs for small groups, they probably are not very different from those most clinics would end up with if they were free to adopt a plan without reference to the provisions of H. R. 10. Most partners would object to a provision in a plan stating that if they resigned from the partnership, they are not entitled to 100% of what has been contributed to a retirement plan for their benefit. Under the law as it existed prior to the passage of H. R. 10, contributions for all employees had to be non-forfeitable when made, if they were non-forfeitable for any employee when made. Therefore, if partnerships had been allowed to adopt retirement plans covering partners before the passage of H. R. 10, I am sure most such plans would have provided contributions for everyone are fully vested when made.

Integration

Another way to cut down the cost of a retirement plan and to have a large percentage of the employer's contributions provide benefits for highly paid employees is to integrate it with social security. While integration is a complicated matter, basically it means that benefits, both from the retirement plan and social security, are uniformly proportionate to salary. Under an integrated plan, an employer may elect to make no contribution with respect to the first $4800 paid to each employee — the amount subject to social security tax — provided the benefits payable on that part of an employee's salary over $4800 do not exceed certain limits. Corporations and large partnerships with no 10% partner may adopt integrated plans provided they meet these traditional requirements for integration. In addition, H. R. 10 allows medical partnerships to assume that their physician-partners are subject to social security for the purpose of meeting the traditional requirement of integration. Small partnerships with a 10% partner will, however, be permitted to adopt integrated plans only if they meet requirements more strict than the traditional ones and in addition only if not more than ⅓ of each annual contribution is made for the benefit of 10% partners. This additional requirement means that small partnerships will have less freedom of action when using integration in an attempt to maximize contributions for the benefit of physicians.

Contributions by Employer

A corporation may contribute to a pension plan so much as is necessary to pay the cost of the plan, to a profit sharing plan up to 15% of the payroll of the covered employees, and to a combined pension and profit sharing plan up to 25% of the payroll of the covered employees.

These rules limiting corporate contributions have not been changed and will apply to contributions by partnerships for the benefit of their employees. They will also apply to partnership contributions for the benefit of persons who are not 10% partners. But for persons who are 10% partners, no more than the lesser of 10% of earned income or $2500 may be contributed annually and, if a person is a 10% partner in two firms, the limitation applies to the aggregate of the two contributions made by both firms on his behalf.

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Earned income to which the 10% limitation on contributions applies is, in the case of a physician, his share of the partnership's net income. Earned income does not include sums received as rent, interest, or dividends.

A corporation is allowed to deduct in computing its income subject to federal income taxes the entire amount it contributes to a qualified retirement plan so long as the contributions are within the over-all limits set forth above. Both large and small partnerships may do likewise with respect to contributions on behalf of employees. However, a partnership, whether large or small, may deduct with respect to a contribution made on behalf of a partner only 50% of the contribution or $1250, whichever is the smaller.

From the foregoing it can be seen that if a partnership adopts a plan calling for an annual contribution of 10% of salary or earned income of all covered employees and partners, it may contribute for a partner whose earned income is $30,000 a year $3000 if he is not a 10% partner, but only $2500 if he is a 10% partner. But no matter what the contribution may be, the firm may not deduct more than $1250 in any year.

One further point with respect to employer contributions should be mentioned. Not only must they be non-discriminatory as between employees and partners, but also they must be non-discriminatory between partners. In other words, it will not be possible to let each partner decide what percentage of his earned income will be contributed to a retirement plan for his benefit. The contribution will have to be computed on the same basis for each partner (except for 10% partners who elect not to be covered) and cannot be more favorable to partners than to employees.

Contributions by Employees

Contributory retirement plans under which the employee contributes part of the cost of the benefits are not uncommon. Employee contributions under such plans are not, of course, deductible in computing the employees' income taxes. There are certain restrictions on such employee contributions to corporate plans to insure that top executives will not contribute a greater percentage of salary than lower paid employees. Partners in large partnerships will be subject to these rather innocuous restrictions. However, partners in a small partnership will be prohibited, in addition, from contributing in any year more than the lesser of $2500 or 10% of their earned income.

Plan Administration

A corporation can name anyone it wants to act as trustee of its retirement plan. A large partnership with no 10% partner may do likewise. However, a small partnership with a 10% partner must name a bank as trustee, except in cases where the fund is invested exclusively in annuity, endowment, or life insurance contracts, in cases where the fund is invested exclusively in mutual funds and a bank is named as custodian to hold the securities, and in cases where the fund is invested in a new type of government bond authorized by H. R. 10.

It is not uncommon for retirement plans to invest in insurance contracts. A type of policy frequently used is one providing $1000 of life insurance for each $10 of retirement income provided. If a corporation's plan invests in insurance contracts of such a nature, the corporation gets a deduction for sums contributed for the purpose of paying premiums on the insurance contracts, but the persons on whose lives the insurance contracts are purchased must include as income an amount equal to the cost of providing a comparable amount of term life insurance. This same rule will apply when partnerships buy insurance contracts of such a nature for their employees. However, if a partnership, whether large or small, causes its plan to buy insurance contracts of such a nature for its partners, the amount of its contribution allocated for such purpose is not deductible in computing the partners' federal income taxes.

One advantage that some medical groups have hoped to obtain from a retirement plan is to have the plan eventually own the groups' building. If this is done, new partners will be able to buy in and deceased or retired partners can be bought out at substantially lower prices. There are no prohibitions against a plan owning a clinic building whether the group be a corporation, a large partnership, or a small partnership. There are, however, restrictions on a plan's right to purchase such building from the group or a building corporation owned by the group. Plans established by small partnerships may not do so under any circumstances and those established by large partnerships and corporations may do so only if they pay a fair price for the building.

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Distribution Dates

Under corporate retirement plans the trustee is usually given broad discretion to determine the method of distribution best suited to each individual's needs. Such discretion is severely limited in connection with distributions to partners in big and small firms. In the case of a partner who does not have a 10% interest, his entire interest must be distributed to him not later than the year in which he becomes 70½ or the year in which he retires, whichever is later. In the case of a 10% partner, his entire interest must be distributed to him not later than the year in which he becomes 70½. The Act authorizes the issuance of regulations permitting installment payments beginning on such dates and continuing over a period not extending beyond the life expectancy of the partner or the partner and his wife.

The Act also requires plans to provide that no benefit may be paid to a 10% partner prior to the time he reaches 59½, except in case he becomes disabled. This will prevent distributions to 10% partners for emergency purposes, on early retirement or on termination of the plan unless such partner has reached 59½ years of age.

Installment Distributions

If an employee covered by a corporate plan to which he has not contributed receives installment payments over a period of years, the entire amount of each distribution is taxable as ordinary income. Partners in both big and small partnerships will receive more favorable treatment. Since only half of their annual contributions will have been deductible in computing their income taxes, they will have paid for out of tax paid income half of what they receive. Therefore, in most cases only half of each installment will be taxable income to a partner or other self-employed person.

Lump Sum Distributions

A beneficiary of a corporate retirement plan who is paid his entire interest under the plan in the year in which his employment is terminated by retirement or otherwise may treat the sums so received as capital gains. This rule for corporate employees remains the same and it will apply to employees of partnerships. The tax treatment of lump sum distributions to a partner whether of a big or small firm is quite different. In any year in which a partner receives a lump sum distribution, he computes what his additional tax would be if he added 1/5 of the distribution to his taxable income. The tax that he must actually pay is 5 times the additional tax so computed. This rule is subject to certain limitation designed to prevent a partner from escaping tax on such distributions by making charitable contributions or other expenditures that are deductible in computing his personal income taxes.

This rule for the taxability of lump sum distributions to partners may not be as burdensome as it sounds at first blush and may even give partners an advantage over corporate employees in sime situations. In the first place it only applies to so much of a lump sum distribution as is attributable to contributions made while he was a partner. So much of such a distribution as results from contributions made while a person was an employee, prior to becoming a partner, is still eligible for capital gains treatment. In the second place, half of most distributions to a partner will not be taxable income in any event as it has been purchased with tax-paid dollars — the half of each annual contribution which is not deductible.

Estate Taxes

Distributions from a corporate retirement plan made after an employee's death to his heirs (but not to his estate) are not considered part of such employee's estate for federal estate tax purposes except to the extent he has contributed to the cost thereof. Well-to-do executives have often reduced estate taxes by leaving intact until their deaths sums accumulated in retirement plans for their benefit and by living off other assets following retirement.

The Act provides that this exemption from estate taxes is not available to partners of either large or small firms.

Other Fringe Benefits

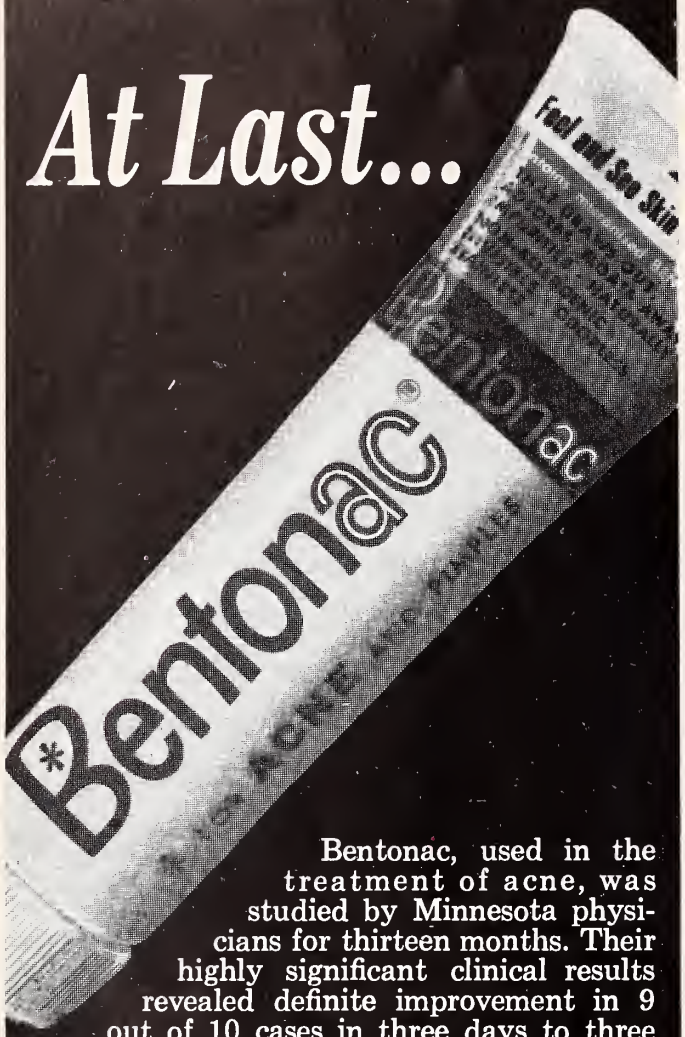
Not only does H. R. 10 discriminate against the self-employed with respect to retirement plans for their benefit, it also discriminates against them with respect to other fringe benefits. Among the fringe benefits that are available to corporate employees are the following:

1. Insurance programs providing group life insurance, group accident and disability insurance, or group health insurance can be established for all employees. Premiums paid for such insurance are deductible when computing a corporation's federal income taxes and will not be taxable income to the employees.

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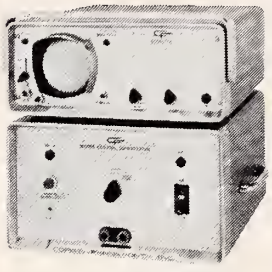
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2. A plan can be established providing for payments to employees who become sick or disabled. If such a plan is adopted, the payments to the employees will be deductible in computing the corporation's federal income taxes and up to $100 per week may be excluded by each employee in computing his income subject to federal income taxes.

3. On the death of an employee up to $5000 may be paid to the widow, estate, or designated heirs of an employee, and such sum will be deductible in computing the corporation's federal income taxes but will not be taxable income to the recipient.

H. R. 10 contains specific provisions to make it clear that if a partner in a partnership, whether large or small, or his heirs receives either type of payment referred to in paragraphs 2 or 3 above, the sums so received constitute taxable income. While the Act does not specifically provide that a partnership will not be able to pay premiums on life, health, and accident insurance taken out for the benefit of a partner and deduct the premiums paid in computing federal income taxes, and that the partner will have to include such premiums in his taxable income, I believe the Treasury will try to interpret the law so as to reach that result. The contrary result in the case of health and accident insurance would not in any event be of much help to partners, for while payments received under such policies are not taxable income if the recipient has paid the premiums, such payments are taxable income to the recipient if his employer has paid the premiums thereon and if the payment does not come under a plan of the type described in paragraph 2 above.

The Verdict for H. R. 10

H. R. 10 is a step in the direction of providing tax equality for the self-employed. But it is only a step and not a very big one. From what has been said it seems obvious that any medical group desiring to establish a retirement plan will be better off from a tax point of view if it incorporates than if it proceeds under H. R. 10; *provided,* of course, the Treasury will permit it to be taxed as a corporation. The provisions of H. R. 10 outlined above placing restrictions on retirement plans and denying other fringe benefits bear out this conclusion, but in the final analysis they are little more than annoyances. The principal problem with H. R. 10 is that there is allowed as a deduction in computing federal income taxes only 50% of what is contributed for each partner and that the deduction cannot exceed in any year the smaller of 50% of each partner's earned income or $1250. A comparison of the tax savings at various income levels under H. R. 10 and under corporate plans will demonstrate the accuracy of this conclusion. In the examples it is assumed the person involved has no outside income, that he files a joint return with his wife, that 10% of his income or $2500, whichever is the smaller, will be contributed to the plan, and that no state income taxes are payable.

Several conclusions can be drawn from an examination of these figures as follows:

1. If an H. R. 10 plan is adopted, it will have to cover on a non-discriminatory basis non-professional personnel as well as physicians. If 10% of the salaries of physicians is contributed to a H. R. 10 plan, 10% of the salaries of non-professional personnel covered by the plan will also have to be contributed. While the amount contributed for the benefit of non-partners will all be deductible in computing federal income taxes, it will of course decrease by the same amount the sums available for distribution to partners. The reduction in a partner's take home pay resulting from such coverage has not been taken into account in making the calculations set forth above and will, of course, vary from group to group. My guess is that for a group which has a 10% partner and one or more non-professionals for each physician, the contributions for non-partners will equal or exceed the tax savings of partners resulting from contributions made for their own benefit. However, if a group already has in effect or plans to place in effect a retirement plan covering its non-professionals, it may be possible to expand such plan to cover partners at little additional cost.

2. If an H. R. 10 plan is adopted, the amounts contributed to it for partners will not be available to them until they retire. Anyone earning between $25,000 and $45,000 a year who makes the maximum annual contribution for his

Continued

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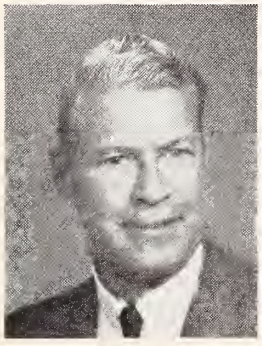
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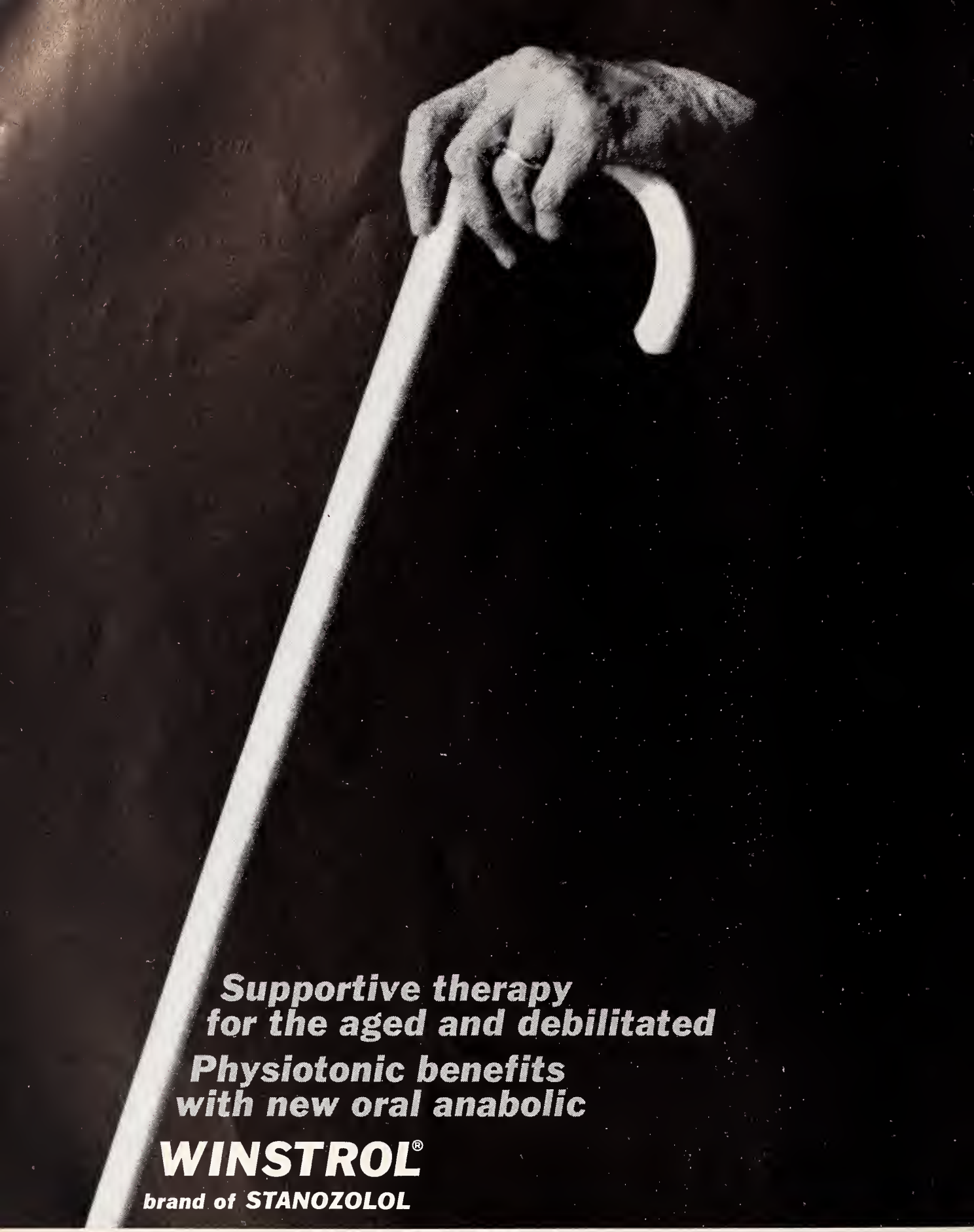
Without any Plan		With H. R. 10 Plan		With Corp. Plan	
1. Taxable income	$16,000	Net income	$16,000	Net income	$16,000
Federal income taxes	3,920	Less contribution	1,600	Less contribution	1,600
Spendable income	12,080		14,400		14,400
		Federal income taxes	3,680	Federal income taxes	3,440
		Spendable income	$10,720	Spendable inc.	$10,950
		Tax saving	$240	Tax saving	$480
2. Taxable income	$25,000	Net income	$25,000	Net income	$25,000
Federal income taxes	7,230	Less contribution	2,500	Less contribution	2,500
Spendable income	17,770		22,500		22,500
		Federal income taxes	6,705	Federal income taxes	6,230
		Spendable income	$15,795	Spendable income	$16,270
		Tax saving	$525	Tax Saving	$1,000
3. Taxable income	$35,000	Net income	$35,000	Net income	$35,000
Federal income taxes	11,900	Less contribution	2,500	Less contribution	3,500
Spendable income	23,100		32,500		31,500
		Federal income taxes	11,275	Federal income taxes	10,165
		Spendable income	$21,225	Spendable income	$21,335
		Tax saving	$625	Tax saving	$1,735
4. Taxable income	$45,000	Net income	$45,000	Net income	$45,000
Federal income taxes	17,340	Less contribution	2,500	Less contribution	4,500
Spendable income	27,660		42,500		40,500
		Federal income taxes	16,620	Federal income taxes	14,800
		Spendable income	$25,880	Spendable income	$25,700
		Tax saving	$720	Tax saving	$2,540

own benefit of $2,500 should realize that while his federal income taxes will be cut somewhere between $525 and $720 per year, his spendable income will be cut somewhere between $1,600 and $2,000 a year before considering the effect on his spendable income of contributions he must make for his employees. Unless he is prepared to cut his personal expenses or cut his expenditures for other forms of savings, such as life insurance, he may have trouble adjusting to such a reduction in spendable income.

3. If a medical group incorporates and if it is treated as a corporation for tax purposes, it will have to face both of the problems mentioned in the two preceding paragraphs. However, if such problems can be resolved, the tax savings for a corporate retirement plan will be greater and they will increase as the partner's income increases above $25,000 per year. Moreover, the amounts contributed annually for physicians whose salaries exceed $25,000 will be in excess of $2500 and yet such additional contributions will not result in any appreciable decrease in a physician's spendable income over what it would be under an H. R. 10 plan.

4. If a physician has no employees, he can adopt an H. R. 10 plan which covers only himself, obtain a reduction in his current federal income taxes, and have the earnings and capital gains realized from his contributions accumulate on a tax-free basis. Such a physician should, however, realize that at best he has only deferred federal income taxes on one-half of the sums paid into the plan and on his share of the income and capital gains of the plan. Federal income taxes on such sums will have to be paid when such sums are drawn out of the plan, and a physician must start to draw them out of the plan no later than the year in which he reaches age 70½. Nothing will have been gained by a physician if such sums are drawn out of the plan at a time when his top federal income tax bracket is higher than when the sums were paid in. Therefore, if a physician is to go into such a plan, he should be prepared to restrict his practice and income when he begins to draw sums out of the plan, and in any event he should be prepared to restrict his practice and income no later than the year in which he reaches age 70½, in which year he must begin to draw

Continued



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down such sums.

5. The earnings from sums contributed to an H. R. 10 plan are not subject to federal income taxes. The magic of compound interest will, therefore, produce a larger sum for a physician under an H. R. 10 plan than if he invested the sums in securities whose income is subject to federal income taxes. However, practically the same result may be obtained for a physician by investing his savings in tax exempt municipal bonds. The one advantage investment-wise to be obtained from an H. R. 10 plan is that it affords a wider choice of investments and permits a physician to invest in common stocks with substantial growth potentials.

6. If a physician lives in a state which has a state income tax, he should check to see whether or not the income tax laws of his state have been amended to conform to H. R. 10. If they have not, he should realize that the sums contributed to the plan for his benefit probably will not be deductible for state income tax purposes. To date no state has amended its income tax laws so as to conform to R. R. 10.

Prospects for Professional Associations and Corporations

There have been 20 states that have passed statutes in the past two years permitting the formation of professional associations and corporations by physicians and members of other professions and three other states have taken similar action by an Attorney General's opinion or court order. Several hundred groups have organized under these statutes and applied for permission to be taxed as corporations. To the best of my knowledge all of such applications (save one) are still sitting in Washington waiting for a decision by the Treasury.

I think it is clear the Treasury has been sitting on these applications hoping the passage of H. R. 10 would take the pressure off it to approve them. It said as much in 1960 when it submitted its substitute for H. R. 10. Then it said its substitute "would eliminate the problems now resulting from attempts by partnerships to secure classification as a corporation for tax purposes in order to be eligible for coverage in qualified tax plans." This result might have ensued if H. R. 10 had not taken such a restrictive form. But with H. R. 10 passed in such a restrictive form, I am sure many professional groups will continue their efforts to be taxed as corporations in order to obtain more favorable tax treatment. I venture to guess that the Treasury will continue to view such efforts with a jaundiced eye and will not readily grant them their wishes at the administrative level. However, I will predict, as I have in the past, that any group which organizes under a professional corporation act (as distinguished from a professional association act) and takes the Treasury to court on its eligibility to be taxed as a corporation is going to administer a resounding defeat to the Treasury, just as was done in the *Kintner* and *Galt* cases.

Also I believe that we have not heard the end of the Treasury proposals — particularly the one to make corporations with a 10% stockholder subject to all the restrictive provisions of H. R. 10. If tax reform becomes a major piece of Congressional business in 1963, as the President has requested, I feel sure the Treasury will again urge adoption of its proposals which were rejected last month. If its proposals become law so that corporations with 10% stockholders become subject to the restrictive provisions of H. R. 10, then there will no longer be any reasons from a tax point of view to organize as a professional association or corporation, unless your group is large enough so that it has no 10% stockholder or partner.

PLEASE NOTE!

In the February issue of MINNESOTA MEDICINE, an article referring to the Federal Bureau of Narcotics (Page 193) was headed "FBI Asks Aid." This should have read: "FBN Asks Aid."

Any physician acquiring information regarding attempts to obtain narcotics should contact the Federal Bureau of Narcotics; 402 Federal Building, Minneapolis or the State Board of Medical Examiners; 230 Lowry Medical Arts Building, St. Paul.



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In Memoriam

CHARLES R. DRAKE

Dr. Charles R. Drake, 81, former Minneapolis Board of Education member and Twin Cities physician for more than fifty-three years, died January 10. He was born at Rushford, Minnesota and received his medical degree from the University of Minnesota.

Dr. Drake was instrumental in establishing the first laboratory at the University hospitals and was a former instructor at the University of Minnesota.

He was a member of the American College of Physicians, College of American Pathologists, American Society of Clinical Pathologists, Radiological Society of North America, and a former president of the Minnesota State School Board Association. Dr. Drake was a 50 Club and Life member of the Hennepin County Medical Society and Minnesota State Medical Association. He was also a member of the American Medical Association.

He is survived by his wife, two daughters and two sons, one being Dr. Robert M. Drake, commander at the Philadelphia Naval Hospital.

JOHN F. NOBLE

Dr. John F. Noble, 69, St. Paul pathologist died February 5th at his home in Roseville. He was born at Pittsburgh, Pa. and received his degree in medicine from the University of Pittsburgh.

Dr. Noble had been the pathologist for Ancker, St. Johns and St. Luke's hospitals for many years. He was a member of the Ramsey County Medical Society, Minnesota State Medical Association, American Medical Association, Minnesota Pathological Society, and the American Society of Cancer Research.

He is survived by a sister.

BERNARD D. KAISER

Dr. Bernard D. Kaiser, 34, general practitioner at Belle Plaine, died in a head-on collision February 9th on Highway 19. He was born at Madelia, Minnesota and obtained his degree in medicine from Creighton University at Omaha, Nebraska.

He was a member of the Scott-Carver Medical Society, Minnesota State Medical Association and American Medical Association.

He is survived by his wife and three children.

WILLIAM A. SAWATZKY

Dr. William A. Sawatzky, 69, general practitioner in Minneapolis for forty-four years, died February 9th. He was born at Shakopee, Minnesota and received his degree in medicine from the University of Minnesota.

He was a member of the Hennepin County Medical Society, Minnesota State Medical Association, American Medical Association and American Academy of General Practice. He was on the staff of Lutheran Deaconess hospital and a member of the American Geriatrics Association.

He is survived by his wife and two daughters.

Board of Medical Examiners

MINNEAPOLIS FORK-LIFT OPERATOR SENTENCED FOR ABORTION

Re: State of Minnesota -vs- George Perez

On January 8th, 1963 George Perez, 36, 1414 Fourth Ave. N., Minneapolis, was sentenced by the Hon. D. E. LaBelle, Judge of the District Court of Hennepin County, to a term of not to exceed two years in the State Prison at Stillwater for the crime of abortion. The Court then stayed the execution of the sentence for a period of two years, however, and placed the defendant on probation for the same period of time. Perez had entered a plea of guilty to the charge before Judge La Belle on November 29th, 1962.

When a 26-year-old divorcee was hospitalized at Minneapolis General Hospital in October 1962 after attempting to commit suicide, it was learned that she had submitted to a criminal abortion two months previously. An investigation, which confirmed the information given by the woman, disclosed that she had solicited the assistance of a 31-year-old male acquaintance in locating an abortionist, after learning from a Minneapolis physician that she was pregnant. Shortly thereafter, on August 25th, 1962, the acquaintance came to her home with the defendant and after an agreement was reached that Perez would be paid $150.00 for his services, he inserted a catheter after washing it under the water faucet. The woman did not abort, however, and the defendant again inserted the catheter on August 28th and September 1st. On September 4th the woman became ill and on September 8th she was hospitalized at a Minneapolis hospital, where she expelled the fetus.

At the time that the woman was hospitalized she had not yet paid the defendant for his services and thereafter she refused to pay him because he had placed her life in jeopardy by performing the abortion. Perez, who operates a fork-lift for a Minneapolis industrial company, has no medical training and holds no license to practice any form of healing in the State of Minnesota.

Minnesota State Board of Medical Examiners
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Not long ago, in the late 30's, health care costs through pre-payment plans were taken pretty much for granted. But as costs rose, concern mounted.

As a result, throughout the nation, some Blue Shield plans have come under intensified questioning. In Massachusetts, New York, New Jersey, Pennsylvania and Michigan, there have been repeated public hearings on rates and requests for rate increases.

The Blue Shield plans were able to account more than satisfactorily for their own work. But the concern threw light on the need for Blue Shield to make a comprehensive analysis of its own performance with facts and figures to prove the efficiency of health care through the pre-payment structure.

In many states, the key to this measure of performance was the creation of a new department — that of utilization studies. Utilization means use — how the prepayment dollar is spent and why.

Newest plan to begin a utilization department is Minnesota Blue Shield. The department of Minnesota Blue Shield's Utilization Audit and Review will be headed by Ben Stephens.

This new department's work with subscribers and physicians through the Blue Shield operations will act as a pivot point for all other utilization studies, formerly carried on through other departments. However, by centralizing these studies, it is felt that the utilization control work can be intensified.

The new department, which will emphasize cooperation among all concerned, will be Minnesota Blue Shield's answer to the proper understanding of how the Minnesota pre-payment health care dollar is used. In turn, this will provide objective information which can be utilized as an evaluation of performance.

The new Blue Shield move came following a national conference on utilization. The conference was composed of representatives of the American Medical Association, the American Hospital Association, the National Association of Blue Shield plans and the Blue Cross Association. Covered by reports was the extent to which patients use physicians' and hospital services as well as methods in measuring this use, applying the results to proper patient care and at the same time reducing costs.

In many ways, a reassurance through specialized audit and action by Blue Shield would seem to be necessary in light of a changing consumer mood, as evidenced in other actions throughout other states. When Blue Shield Plans and the work of the Blue Shield participating physicians have come under public question in several other states, it would seem logical that Minnesota Blue Shield should have the results of a coordinated auditing that will support the validity of a complaint or remove all suspicion of misuse.

Regardless of the end result, complete records must be kept through the work of such a department so that a challenge from anyone who wants to know more about Blue Shield performance can be answered with facts and figures. These facts and figures alone will remove the "guesswork" as to Blue Shield's aim to protect the subscriber and participating physicians' investment in Blue Shield.

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Meetings and Announcements

MARCH

Fourth Oklahoma Colloquy on Advances in Medicine: "Pulmonary Insufficiency," March 28-30, University of Oklahoma Medical Center Auditorium. Contact: Dr. Robert Byrd; University; 800 N. E. 13th; Oklahoma City.

Mayo Clinic and Foundation Clinical Reviews, March 11-13 and March 18-20; Theater; Mayo Civic Auditorium; Rochester. Contact: M. G. Brataas; Mayo Clinic; Rochester.

University of Iowa postgraduate conference "Infertility and Endocrinology," March 27. Contact: John Gius, M. D.; College of Medicine; Iowa City, Iowa.

American College of Allergists Graduate Course and Nineteenth Annual Congress, March 24-29, Americana of New York, New York. Contact: John Gillaspie, M.D., 2141 14th St., Boulder, Colorado.

Department of Otolaryngology, University of Illinois College of Medicine postgraduate course in laryngology and bronchoescophagology March 18-30. Contact the Department at the College in Chicago.

APRIL

Ninth Hahnemann Symposium "Theory and Practice of Auscultation", April 15-17, Sheraton Hotel, Philadelphia, Pa. Contact: Bernard Segal, M.D., Hahnemann Medical College and Hospital, Philadelphia.

American College of Surgeons Sectional Meeting, April 25-27, Toronto, Ontario, Royal York Hotel. Contact: American College of Surgeons, Chicago.

Harvard Medical School postgraduate course "The Medical Care of the Adolescent", April 29-May 3, Children's Hospital Medical Center, Boston. Contact: Dean; Harvard Medical School; Boston.

American College of Surgeons Seventh Postgraduate Course in Trauma, April 24-27, John B. Murphy Auditorium, Chicago. Contact: Dr. John J. Fahey, 1791 Howard Street, Chicago.

AMA Council on Rural Health Conference, April 5-6, Drake Hotel, Chicago. Contact: Council on Rural Health, AMA, Chicago.

Medical College of Virginia Course "Expended Surgery of the Nasal Septum" April 28-May 1, Medical College of Virginia, Richmond. Contact: Dr. Kinloch Nelson, Medical College of Virginia, Richmond.

MAY

MINNESOTA STATE MEDICAL ASSOCIATION Annual Meeting, May 20-22, Duluth, Contact: Harold W. Brunn, Exec. Secy., 496 Lowry Medical Arts Bldg., St. Paul.

University of Colorado Medical School postgraduate course "Thirteenth Annual Intern-Resident Clinics" May 23-24 in Denver. Contact: University.

University of Iowa postgraduate conference "Iowa Eye Association", May 3-4, Contact: John Gius, M. D.; College of Medicine; Iowa City, Iowa.

American Thoracic Society Meeting, May 13-15, Denver, Colorado, in conjunction with the 59th annual meeting of the National Tuberculosis Association. Contact: National Association, 1790 Broadway, New York.

Minnesota Heart Association "Nutrition Symposium" May 9-10, Minneapolis. Contact: Robert Hohman, Heart Assn. St. Paul.

ANNOUNCEMENTS

AMA 112th Annual Meeting, Atlantic City, June 16th thru 20th. Convention Hall.

* * *

1963 AAPS Essay Contest for High School Students. Participants will have the following choice of topics: "The Advantages of Private Medical Care" or "The Advantages of the American Free Enterprise System over Communism." National prizes of $2,675 will be offered with the first prize being $1000. Write: Association of American Physicians & Surgeons; 185 North Wabash Avenue; Chicago or Dr. James Cosgriff at Olivia for information.

* * *

University of Minnesota medical continuation courses: April 29-May 1, Ophthalmology, May 16-18 Surgery, May 27-29 Psychiatry. For further information write 1342 Mayo Memorial, University of Minnesota, Minneapolis.

* * *

American College of Physicians postgraduate courses offered:

May 20-24—Physiological Aspects of Cardiopulmonary Disease, Indiana University Medical Center, Indianapolis, Ind.

* * *

Next scheduled examination (Part II) oral and clinical of the American Board of Obstetrics and Gynecology will be held at Edgewater Beach Hotel, Chicago, April 29-May 4. Notices will be sent candidate of exact time.



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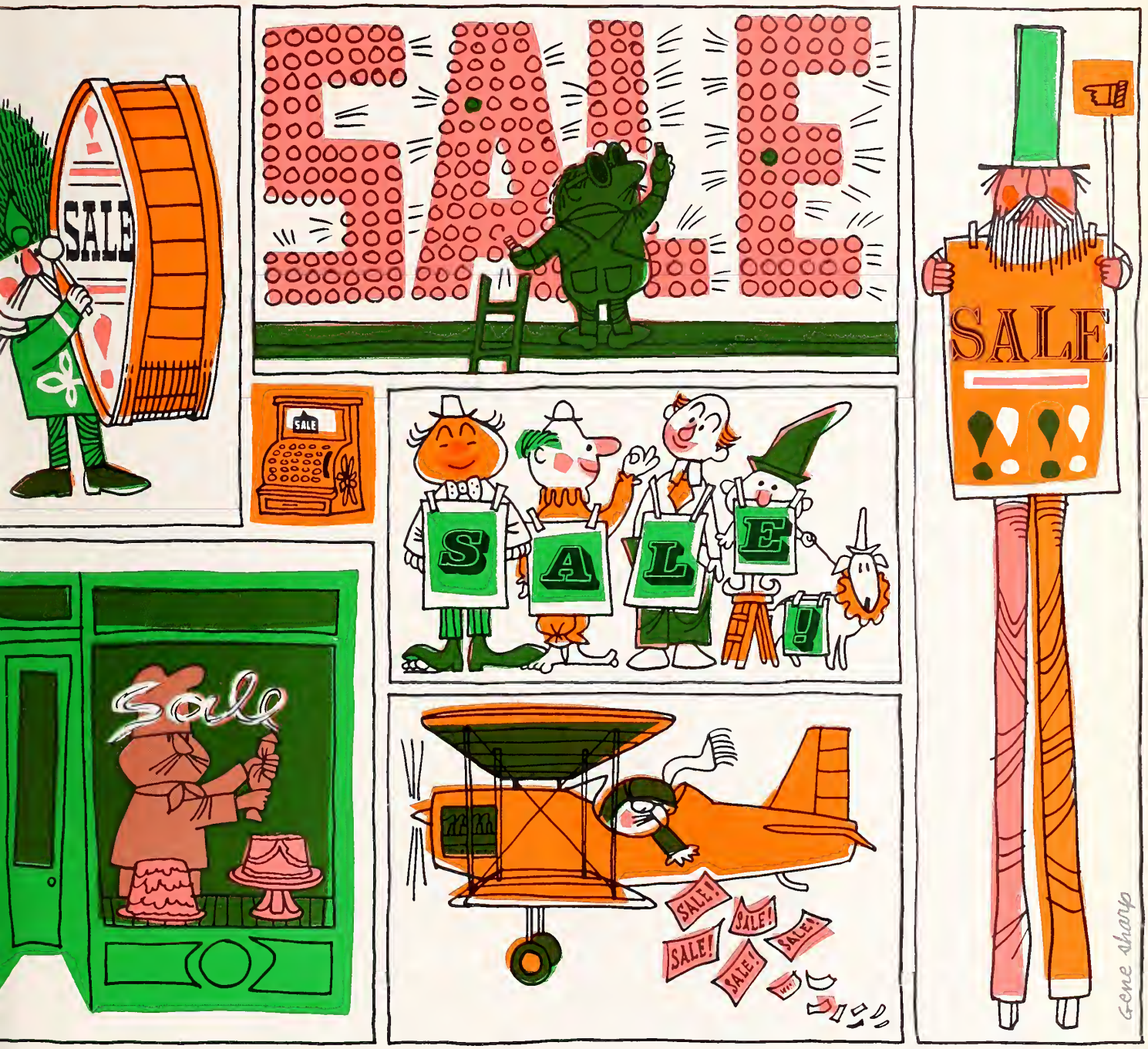


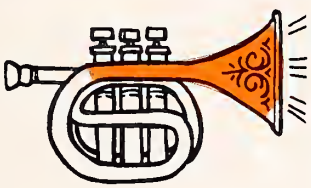
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Physician's Diary

Dr. William G. Heegaard, Alexandria, received Alexandria's Outstanding Young Man of the Year award last month for his outstanding civic and professional activities and accomplishments.

* * *

Dr. F. E. Donoghue, Mayo Clinic, spoke at the Women's Auxiliary to the Zumbro Valley Medical Society, and **Dr. Herman H. Young** of the Clinic spoke at the Industrial Safety Conference in Duluth. Their topics were: "The Gopher Doctor's Wife in 1963" and "Preventable Accidents" respectively.

* * *

Changes in location: **Dr. Roy Toyama** of the Lenont-Peterson Clinic left the clinic to take a residency at the University of Minnesota . . . . **Dr. Richard B. Ellingson,** formerly at the Mayo Clinic, is now associated with **Dr. Richard C. Horns,** Minneapolis Ophthalmologist . . . . **Dr. Donald H. Petersen,** former director of health services at St. Olaf College, will start a general practice of medicine in Northfield . . . . **Dr. Charles N. Bean** recently joined **Dr. John W. Clarke** in a new partnership in the Lakeview Clinic, Waconia . . . . **Dr. Remi L. Pizzarro** has joined **Drs. W. R. Smith** and **Roger MacDonald** in Grand Marais . . . . **Drs. B. B. Lenz** of shakopee and **H. S. Strait** of Glencoe have joined in the practice of medicine at the Holly Clinic in Fridley . . . . **Dr. William T. Smith,** clinical assistant professor of proctology at the University of Minnesota, has become associated with **Dr. William C. Bernstein** in St. Paul, in the practice of proctology . . . . . **Dr. Jerome J. Ballantine** has become associated with **Drs. James H. Kelley And Richard F. Klein** in St. Cloud . . . . **Dr. Harry Simmonds** has closed his offices at Prior Lake to take up further training in New York . . . . **Dr. Wallace I. Nelson** has returned to the staff of the Nicollet Clinic in Minneapolis after being on a four months' tour of duty with the World Brotherhood Exchange Program . . . . **Dr. C. V. Bateman of** Wahpeton has accepted an appointment as general practitioner at the Fergus Falls State Mental Hospital.

* * *

Dr. Patrick J. Kelly, a member of the Section of Orthopedic Surgery at the Mayo Clinic, was awarded a traveling exchange orthopedic fellowship by the American Orthopaedic Association and the British Orthopaedic Association.

* * *

Dr. Herman Drill, Hopkins, has been elected president of the Abbott Hospital medical staff; **Dr. Richard Rodgers** was named vice president, and **Dr. John D. Tobin,** secretary-treasurer.

* * *

Dr. William H. Bickel, Mayo Clinic, was elected president of the American Academy of Orthopaedic Surgeons at their annual meeting . . . . **Dr. J. W. Dushane** was named chairman for the 1963 Sub-Board of Pediatric Cardiology . . . . and **Dr. William H. Weidman** was named to the Council of the Midwest Society for Pediatric Research.

A new book "Physiology of the Circulation in Human Limbs in Health and Disease" by **Dr. John T. Shepherd** of the Mayo Clinic has been published by the W. B. Saunders Co.

* * *

Dr. John Stuhr of Stillwater was recently honored at the Lakeview hospital on occasion of his 80th birthday.

* * *

Dr. John F. Briggs, St. Paul, president of the American College of Chest Physicians will head the delegation of 150 physicians from the United States who will attend the Seventh International Congress on Diseases of the Chest at New Delhi.

* * *

Drs. Louis Tobian, Jr. of Minneapolis, **Lloyd G. Bartholomew, Kenneth G. Berge, James C. Hunt, Joseph M. Kiely, Gordon M. Martin, John G. Mayne, R. Drew Miller, George D. Molnar,** and **Phillip J. Osmundson,** all of Rochester, and **Robert B. Howard** of St. Paul all have designated as fellows of the American College of Physicians.

* * *

Dr. Kurt Pollak of Minneapolis was part of the instructional staff at the course on "Expanded Surgery of the Nasal Septum" at the Loma Linda University School of Medicine in Los Angeles.

* * *

Dr. Homer H. Russ, LeCenter, was elected president of the LeCenter Community Club . . . and **Dr. Dwight Hoeg** was elected chief of staff at the Miller Memorial Hospital in Duluth.

* * *

Dr. Robert Howard, dean of the Minnesota Medical School, was guest speaker at a recent meeting of the Range Medical Society.

* * *

Dr. Richard C. Horns of Minneapolis attended the international convention of Ophthalmologists in New Delhi recently.

* * *

Dr. Charles Goodman, veteran Virginia physician, was recently honored for his outstanding years of service in that area.

* * *

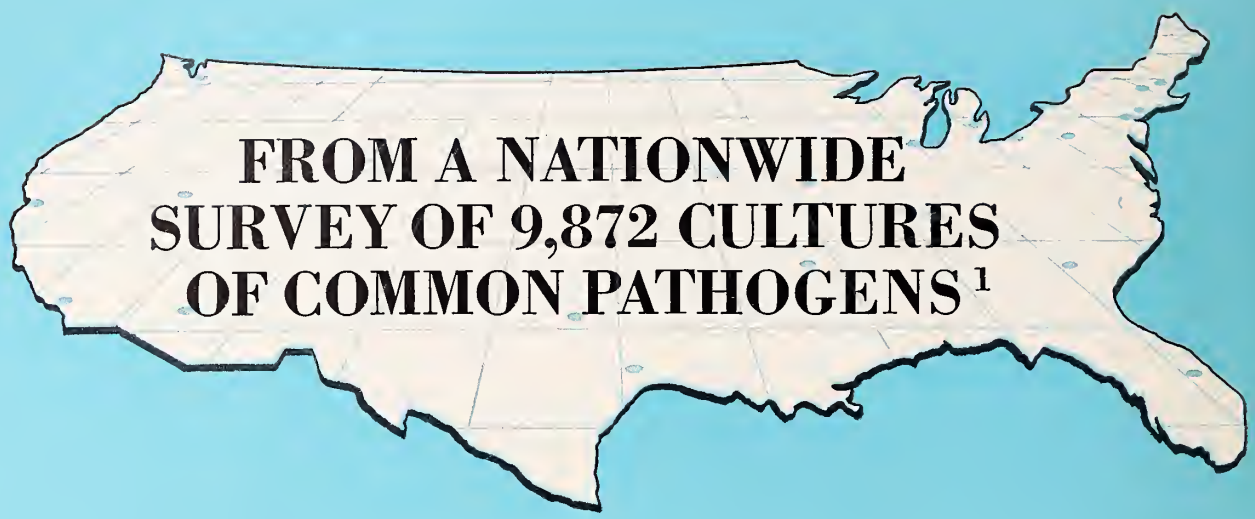
After many years of practicing medicine in Dodge Center, **Dr. C. E. Bigelow** has closed his offices in that city.

* * *

Recent panelists at the Student American Medical Association meeting recently were: **Dr. John Lester** of Mapleton, **Dr. Herb Huffington** of Waterville, and **Dr. Wallace E. Mathews** of Mankato.

* * *

Dr. Joseph Gaida of St. Cloud recently returned from attending sessions of the International College of Surgeons in Rome.



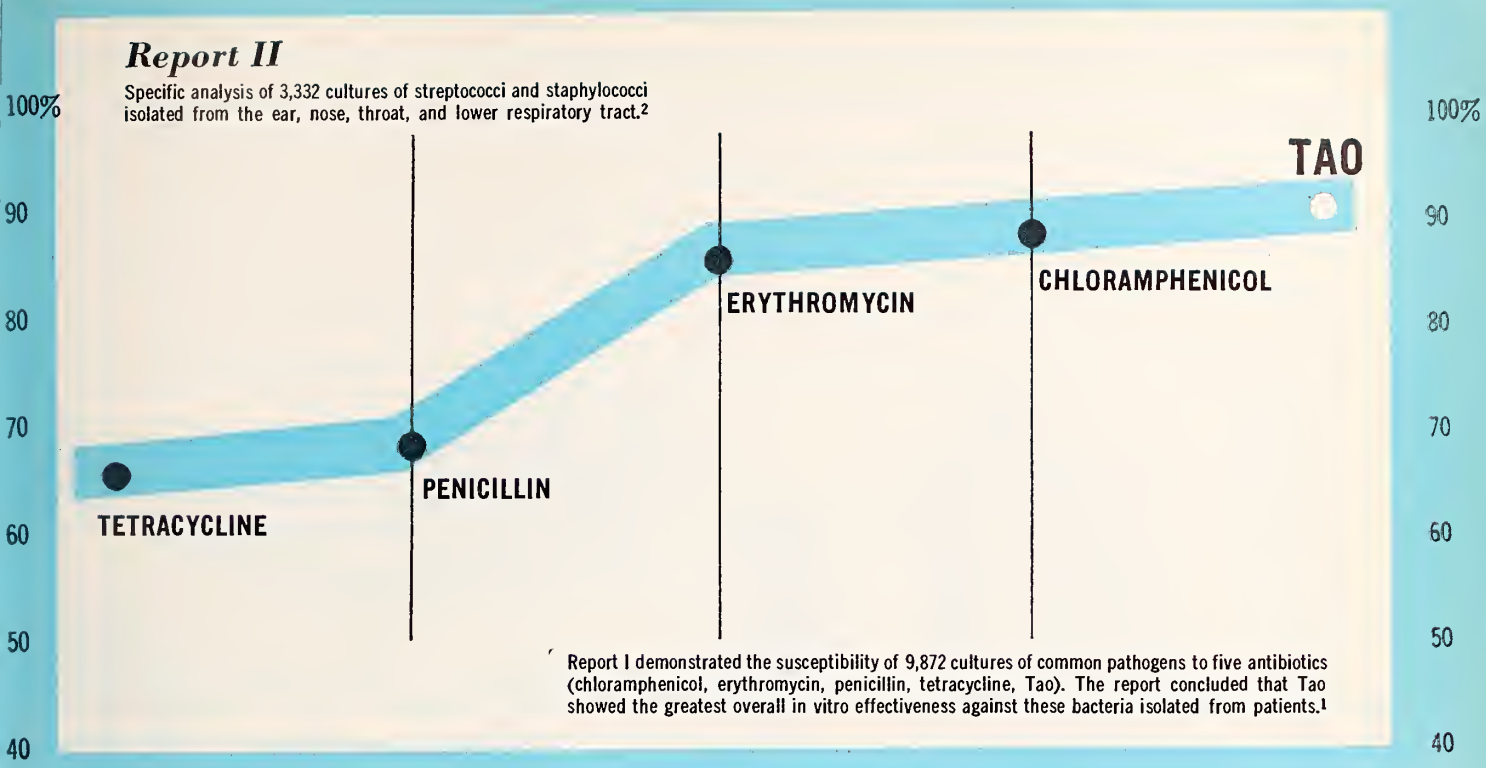
FROM A NATIONWIDE SURVEY OF 9,872 CULTURES OF COMMON PATHOGENS[1]

Conclusions of Nationwide Survey: *Report I*

1. **Even after five years of general use,** Tao, of the antibiotics tested, demonstrated greatest activity against respiratory streptococci and staphylococci (3,332 cultures).

2. **Overall results showed a higher percentage of susceptibility** among these common pathogens to Tao than to the other antibiotics. Susceptibility to Tao was greatest, not only in respiratory streptococci and staphylococci, but also in these organisms isolated from skin and soft tissue (3,423 cultures), genitourinary and gastrointestinal tracts and other sources (2,458 cultures). Susceptibility was equal to all antibiotics tested in pneumococci from unspecified sources (463 cultures), and less to Tao in H. influenzae from unspecified sources (196 cultures).

3. **Tao has been used for five years without development of predictable cross resistance.** In 1958 and 1961, approximately 73% and 70%, respectively, of erythromycin-resistant problem staphylococci showed susceptibility to Tao.[3,4] The present study confirms the continuing high degree of Tao activity even against these pathogens. Of 1,592 cultures of erythromycin-resistant staphylococci, 68% were susceptible to Tao, while in the reverse situation, only 33% of 768 Tao-resistant staphylococci were susceptible to erythromycin.



Report II

Results of Bacterial Susceptibility in 3,332 Respiratory Pathogens

References

1. "Bacterial Susceptibility Patterns: A Geographic Survey." Fowler, J. Ralph, M.D., and Watters, John L., M.D. Scientific Exhibit presented at the Annual Meeting of the American Society of Clinical Pathologists, Chicago, Ill., August 31 to September 9, 1962. 2. Fowler, J. Ralph, Watters, John L. and Levy, Arthur M.: Bacterial Susceptibility Patterns as Related to Geographic Variation and Anatomical Source. In press. 3. English, A. R., and Fink, F. C.: Antibiot. & Chemother. 8:420 (Aug.) 1958. 4. English, A. R., and Fink, F. C.: Antibiot. and Chemother. 11:648 (Oct.) 1961.

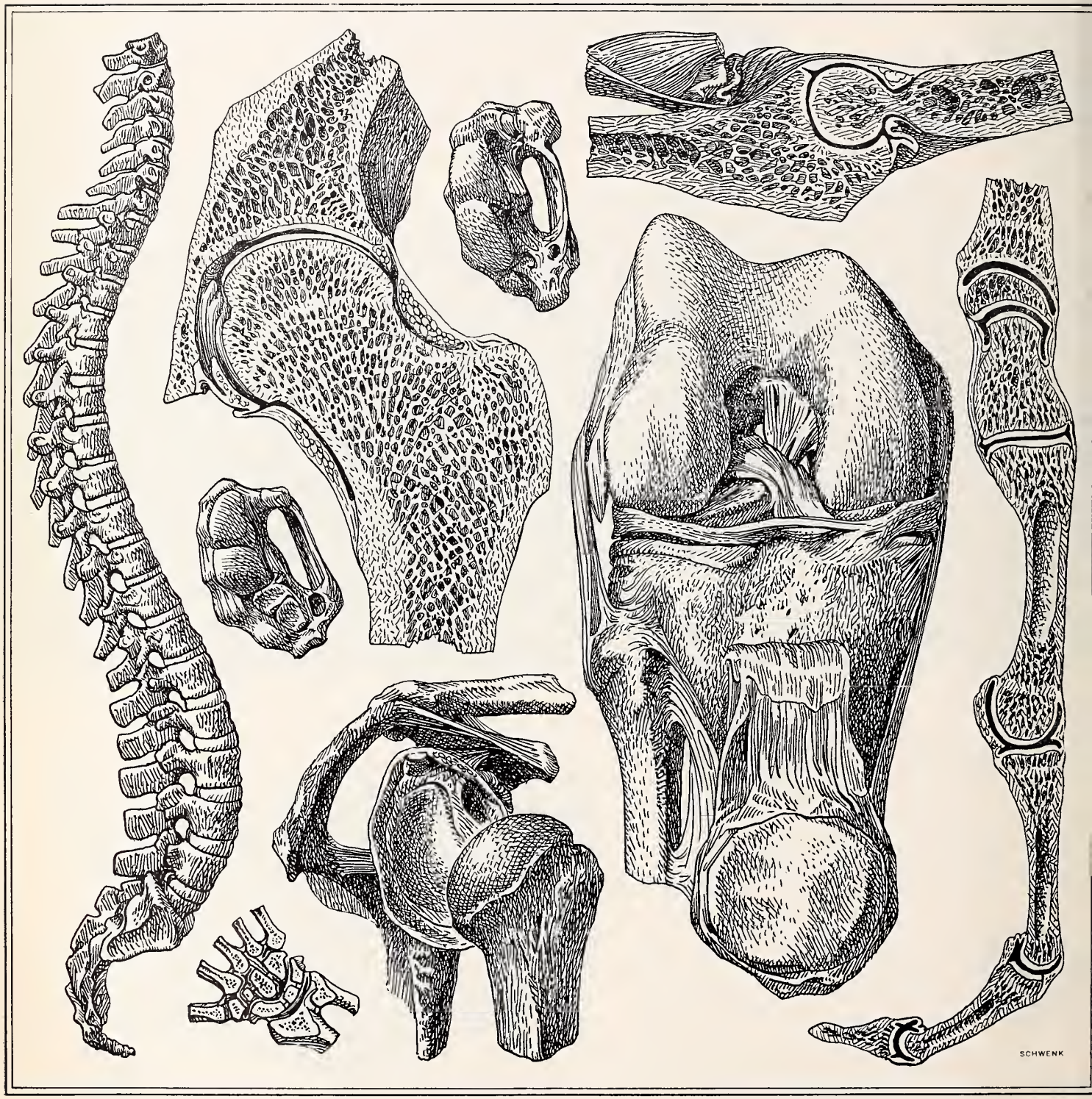
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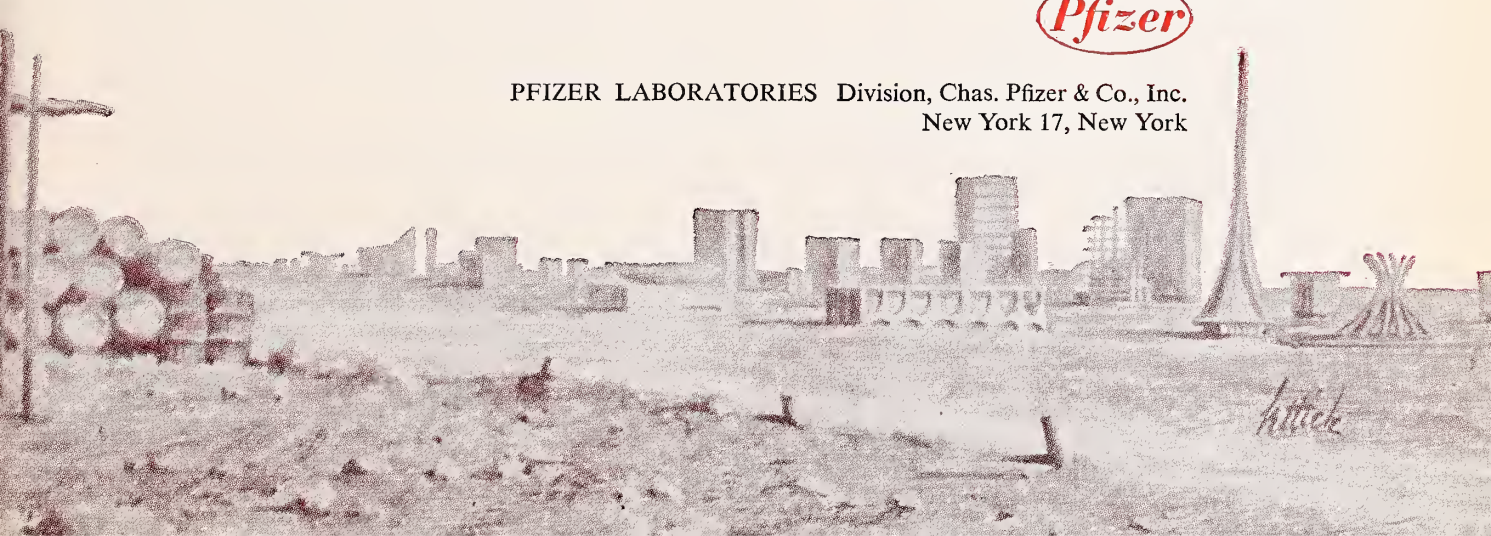


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MARTIN B. KISSEN, M. D., Philadelphia, Pa.—*"Medical Complications of Acute Alcoholism"*
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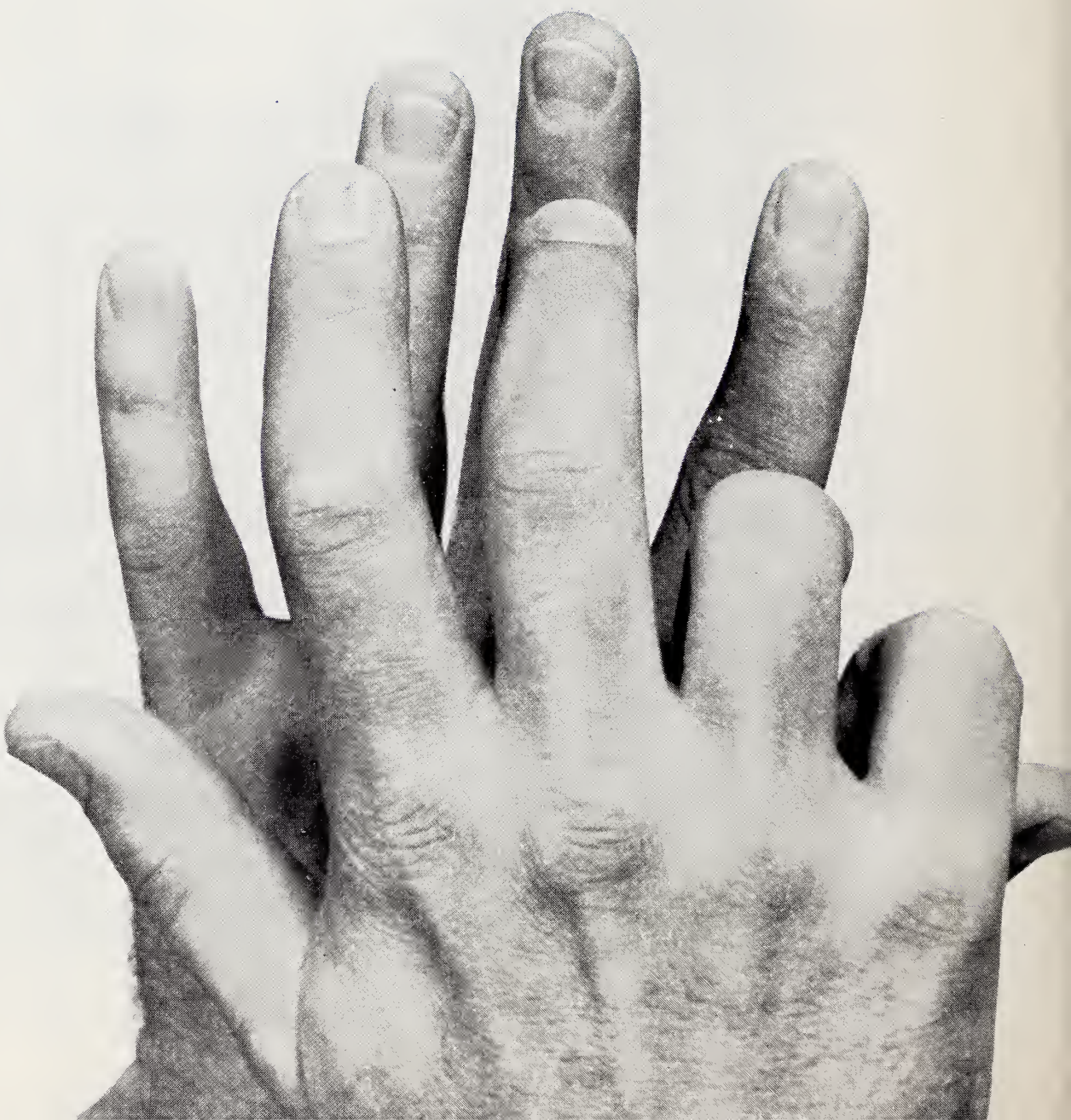
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Medicine

April, 1963

Volume 46

Number 4

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Bibliographical references should be limited to twelve and should be typed in conformity to the method used by the Quarterly Cumulative Index. They should be numbered consecutively in the order in which they first appear in the text. Book references should give the name of the author, title, edition number, publisher, and the year.

Illustrations (photographs, tables, and graphs) should be submitted on separate sheets of paper and not combined in the text. Instructions for combining photographs are acceptable.

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President's Letter

The 110th annual meeting of the Minnesota State Medical Association will be held in Duluth on May 20, 21 and 22.

Your Committee on Scientific Assembly has prepared an outstanding program for this meeting, which is published on page 397 of this issue of Minnesota Medicine.

In consideration of the high quality of this program, the Academy of General Practice has authorized six hours of Class I credit for those of its members who attend the Tuesday sessions. The programs on Monday and Wednesday are equally outstanding as are the Round Table Luncheons which will be held at noon on Monday and Tuesday.

The scientific sessions will be held at the Duluth Armory and will begin at 10:00 a.m., Monday.

The House of Delegates will assemble on Sunday afternoon, May 19, at 2:00 p.m. with a second session Tuesday morning, May 21st. The Tuesday session will be addressed by Dr. George Fister, President of the American Medical Association.

A dinner for new members and county officers will be held on Sunday evening.

The annual banquet will be held Tuesday evening. The program will be limited to honoring a number of our older members. This will be followed by entertainment provided by our hosts, the St. Louis County Medical Society. A most enjoyable evening is in store for all of those who attend.

Duluth has in addition to its hotels, many new large motels which furnish very desirable accommodations. A listing of hotel and motel accommodations is being sent to you with your official program.

As your President I urge that you plan to attend this annual meeting. In addition to an outstanding professional program, Duluth provides much of interest for the visitor and our hosts have worked very diligently to make your stay most enjoyable as well as professionally rewarding.

Plan to come and to remain for the entire meeting. I shall look forward to seeing you in Duluth.



Minnesota State Medical Association
President
Donald McCarthy, M.D.



Jostle a peck of potatoes long enough and the little ones will fall to the bottom; the big ones work their way to the top. So do the larger particles of an admixture of powdered chemicals. Unless steps are taken to keep particle sizes uniform, the active ingredients will not be evenly dispersed throughout an excipient. That is why Lilly pharmaceutical chemists establish precise specifications; maintain rigid controls. A few more steps are added and the cost is slightly increased, but priceless uniformity is assured in the finished product.

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• Perianal
• Abscess
• and
• Anorectal
• Fistula

WILLIAM E. RAWLS, M.D.*
WILLIAM J. MARTIN, M.D.**
ROBERT J. SPENCER, M.D.†
HARRY N. HOFFMAN, II, M.D.**
Rochester, Minnesota

Underlying systemic disease was present in 17% of cases of perianal abscess and fistula. All patients with anal or perianal complaints should receive a careful gastrointestinal evaluation.

DESPITE MANY references in the literature to the association of perianal abscess and fistula with individual diseases, there are few current reports on the comparative incidence of these underlying diseases. With the availability of modern antimicrobial therapy, certain underlying diseases such as tuberculosis and lymphopathia venereum warrant decreased etiologic consideration and consequent revision of one's list of underlying diagnostic possibilities. Also, the description and elucidation of chronic ulcerative colitis and regional enteritis have influenced considerably one's current evaluation of patients with anorectal lesions. It is the purpose of this paper to consider briefly the pathogenesis of anorectal lesions and then to report on 1000 cases of perianal abscess and fistula analyzed from the viewpoint of the nature and incidence of underlying diseases.

Methodology

In the 1000 patients comprising this series, a complete medical history and the results of physical examination were available in addition to the laboratory and roentgenographic data required to establish the diagnosis of the associated diseases listed later in the paper. Only anorectal lesions demonstrable by careful proctoscopic examination or lesions outlined at surgical correction were included. Blind rectal and perianal sinuses and pilonidal-cyst disease were excluded from the study. The analysis was made primarily

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**Section of Medicine
† Section of Proctology

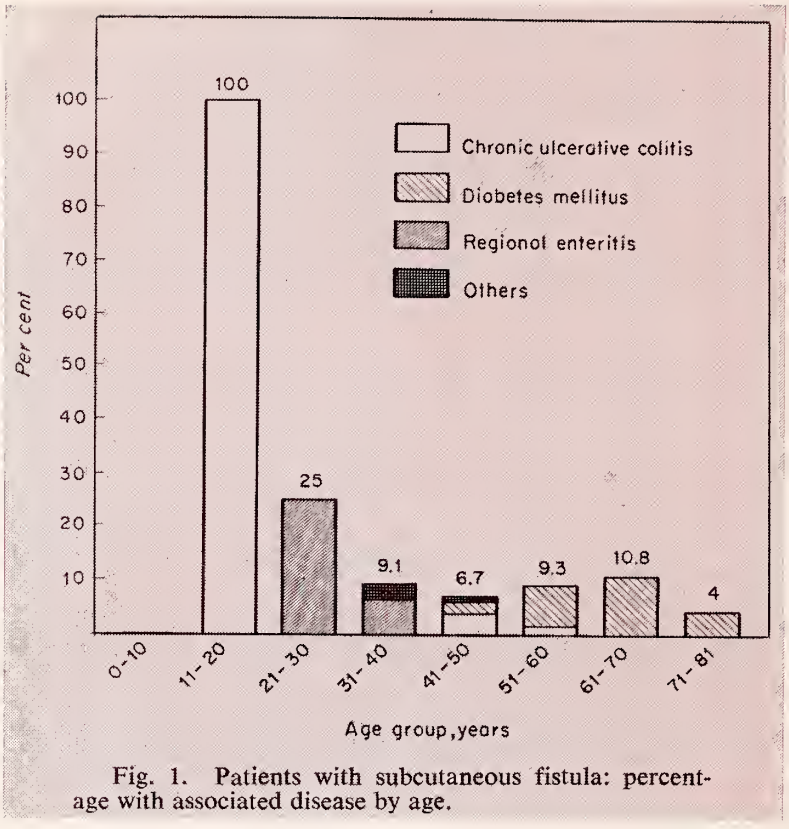


Fig. 1. Patients with subcutaneous fistula: percentage with associated disease by age.

in reference to associated systemic and local diseases that conceivably might have contributed to the genesis of the abscess or fistula.[1]

Pathogenesis

It is generally accepted that most perianal abscesses and fistulas result from the breakdown of normal defense barriers in the anal crypts and a spread of pathogenic microorganisms into the surrounding tissue with subsequent abscess formation.[2] Spontaneous or surgical rupture of the abscess results in the formation of a fistula with its primary opening in the anal crypt and its secondary opening at the point of rupture. Thus the "anorectal" fistula usually originates in an anal crypt even though its course and secondary opening may vary considerably from patient to patient.

However, not all fistulas appear to have their primary opening in an anal crypt, and additional causes have been reported for perianal abscesses.[3] Apparently, pathogenic organisms may invade the subcutaneous tissues surrounding an anal fissure, usually along its distal border, forming a subcutaneous abscess which upon rupturing leaves a small fistulous tract. The pathway of drainage of the infected fissure may, on healing of the lesion, remain as a small tract of granulation tissue. A "subcutaneous" fistula of this type, in contradistinction to an "anorectal" fistula, is a short fistulous tract with a primary opening distal to the anal crypts, generally located anterior or posterior to the anus.

With these points in mind, the 1000 patients in this series were grouped as follows: Group 1. Patients in whom opening of the fistula was located distal to the anal crypts ("subcutaneous" fistula). Group 2. Patients having a fistula whose primary opening arose in the anal crypts or higher in the bowel ("anorectal" fistula). Group 3. Patients who had only a perianal abscess.

Results

The underlying or associated diseases and the frequency of their occurrence are listed in table 1. The three most frequently occurring disorders—chronic ulcerative colitis, diabetes mellitus, and regional enteritis—were the underlying processes in 17 per cent of the patients.

Group 1 included 355 patients with an average age of 54.2 years; 55 per cent were males. Figure 1 graphically demonstrates the incidence of associated diseases in this group ("subcutaneous" fistula) according to age. Only one patient was less than 20 years old and he had associated

chronic ulcerative colitis. Three patients (0.8 per cent) had associated regional enteritis, six (1.7 per cent) had chronic ulcerative colitis, and 21 (5.9 per cent) had diabetes mellitus. Also, one patient with trauma and one with leukemia were included, making a total of 32 patients (9 per cent) with associated diseases in group 1.

Group 2 contained 497 patients with an average age of 49.2 years; 72.6 per cent were males. Figure 2 demonstrates the incidence of associated diseases in this group ("anorectal" fistula) according to age. Twenty-three patients (4.6 per cent) had regional enteritis, 50 (10.1 per cent) had chronic ulcerative colitis, and 42 (8.4 per cent) had diabetes mellitus. Also, 28 patients had various other associated diseases, making a total of 143 patients (28.8 per cent) with associated diseases in group 2.

Associated disease	Frequency per 1000 cases
Chronic ulcerative colitis	71
Diabetes mellitus	67
Regional enteritis	32
Postoperative, anorectal surgery	10
Tuberculosis	6
Carcinoma of rectum	5
Epidermoid cyst	5
Trauma	4
Alcoholism with malnutrition or cirrhosis or both	4
Leukemia and lymphoma	3
Suppurative hidradenitis	3
Obstetrical lacerations	2
Rectal stricture	2
Furunculosis	2
Hypogammaglobulinemia	2
Diverticulitis of colon	1

Table 1

Diseases Associated with Perianal Abscess and Anorectal Fistula

Group 3 consisted of 148 patients with perianal abscess; the average age was 47.3 years; and 69 per cent were males. Figure 3 shows graphically the incidence of associated diseases in this group according to age. Six patients (4.1 per cent) had regional enteritis, 15 (10.1 per cent) had chronic ulcerative colitis, and four (2.7 per cent) had diabetes mellitus. Also, 18 patients had various other associated diseases, making a total of 43 patients (29.1 per cent) with associated diseases in group 3.

Bacteria other than Mycobacterium tuberculosis were isolated in 65 cases (table 2). In most

Organism	Cases*
Escherichia coli	23 (11)
Staphylococci	17 (7)
Enterococci	17 (2)
Corynebacterium	7
Streptococcus pyogenes	3
Bacterioides	3
Aerobacter aerogenes	2
Proteus	1
Pseudomonas	1
Mixed or usual fecal flora	24

Table 2

Bacterial Cultured from Perirectal Abscesses in 65 Cases

IN 65 CASES

cases, organisms comprising the normal fecal flora[4] were found. In 20 cases a single organism was cultured, and in more than half the cases less than three bacterial species were cultured from any one lesion. In only six cases were cultures and guinea pig inoculations positive for M. tuberculosis.

Discussion

The formation of perianal abscess or fistula implies the breakdown of normal defense mechanisms in the anal canal. Even though many etiologic factors have been mentioned speculatively, the cause remains cryptic in most instances. Our study draws attention particularly to three underlying diseases found in association with these anorectal lesions.

In their original description of regional ileitis in 1932, Crohn and colleagues[5] did not recognize the disease as a cause of perianal fistula and stated that "there are none of the perianal fistulas, condylomas or perirectal abscesses that characterize the complications of true colitis, for in this disease the rectum and colon are never involved." Soon anorectal fistula and abscess became recognized as complications of regional enteritis, and in 1938 Penner and Crohn[6] reported on 50 patients with regional enteritis, 14 per cent having these anorectal complications. With the passage of time it became accepted that anal fistula was a common manifestation of regional enteritis. In 1943, Jackman and Smith[7] reported that 31 per cent of 114 patients with regional enteritis had

*Numbers in parentheses represent cases in which the indicated organism was the only one cultured.

anal abscess or fistula at the time of examination, or gave a history of having had such a lesion in the preceding three years. Seven per cent of their patients presented with a fistula. They concluded that anal abscess or fistula was frequently the factor that brought the patient having regional enteritis to the physician, and urged that young adults with any vague intestinal disturbance in association with anorectal lesions be investigated carefully for regional enteritis.

Our study supports this view, since 4.6 per cent of our patients with abscess or anorectal fistula had regional enteritis. The association was even more striking in the younger age groups, where 20 of 52 patients with "anorectal" fistula, between the ages of 11 and 30 years, had underlying regional enteritis.

Among 245 patients having nonspecific ulcerative colitis, Banks and colleagues[8] noted 34 (13.9 per cent) that had fistula in ano, perianal abscess, or rectovaginal fistula. In our series, chronic ulcerative colitis was the most frequent disorder associated with "anorectal" fistula and abscess, being present in about 10 per cent of patients. This association was again most striking in the younger age groups, where 15 of 52 patients with "anorectal" fistula had chronic ulcerative colitis.

The second most commonly encountered associated disease in our series was diabetes mellitus, observed in 67 patients. Unlike the intestinal disorders, it occurred commonly in the older patients. The increased incidence of infectious diseases in patients with diabetes mellitus, especially infections of the urinary tract and skin, is recognized.[9] Possibly this same susceptibility exists in the perianal tissues, leading to abscess and fistula formation. However, since the exact incidence of diabetes mellitus in a given population is determined with difficulty it is not possible to state whether the metabolic defect in our patients was a predisposition to infection or merely a concurrence. Further investigation of the association appears warranted.

Our data indicate that "subcutaneous" fistula carries little implication of underlying inflammatory disease of the bowel, but is noted frequently in older patients with diabetes mellitus. "Anorectal" fistula arising in the anal crypts or higher and perianal abscess are often associated with inflammatory diseases of the bowel. Thus, one in 10 of our patients having such anorectal lesions had underlying chronic ulcerative colitis, and one in 22 had associated regional enteritis, all ages considered. However, the likelihood of

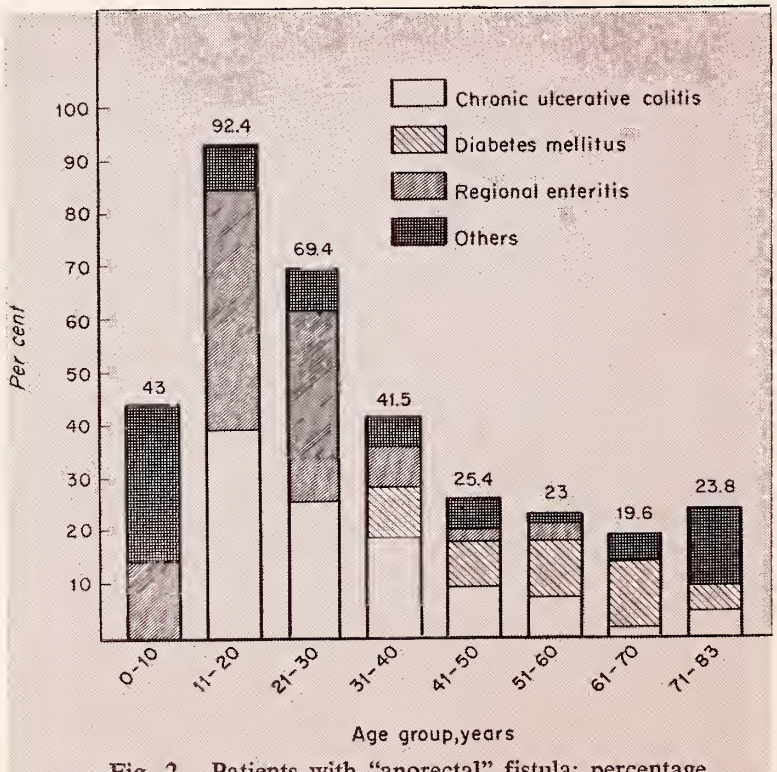


Fig. 2. Patients with "anorectal" fistula: percentage with associated disease by age.

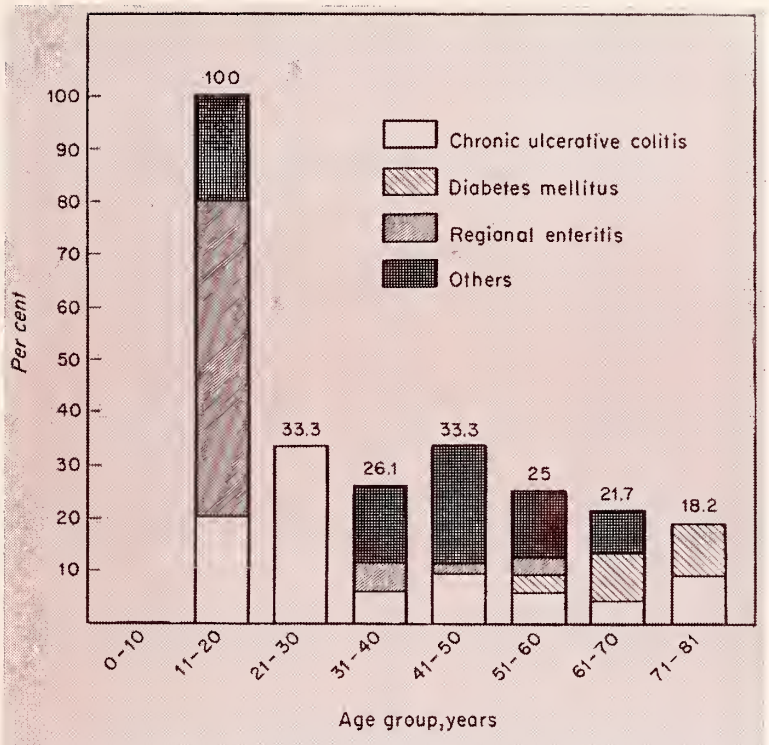


Fig. 3. Patients with perianal abscess: percentage with associated disease by age.

associated inflammatory diseases of the bowel is much greater in the second and third decades of life. These findings support the wisdom of careful gastrointestinal evaluation of young patients presenting with a perianal abscess or fistula, and should alert the physician to the possibility of diabetes mellitus in older patients.

Summary

Analysis of 1000 cases of perianal abscess and fistula disclosed underlying systemic disorders in 17 per cent of cases. The most common of these disorders were chronic ulcerative colitis, diabetes mellitus, and regional enteritis. The wisdom of careful gastrointestinal evaluation of young patients presenting with perianal abscess or fistula is substantiated. Because the exact incidence of diabetes mellitus in a given population is determined with difficulty, it is not possible from the observations made here to state whether the metabolic defect predisposes to anorectal infection or is merely a concurrence.

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I like work; it fascinates me; I can sit and look at it for hours. — Jerome K. Jerome



Fig. 1. Lateral roentgenogram of the cervical spine prior to skull traction.

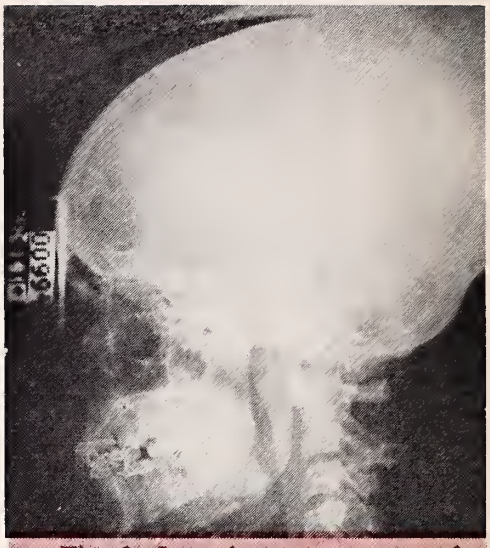


Fig. 2. Lateral roentgenogram of cervical spine after reduction by skull traction. Same patient as Fig. 1. Note that skull tongs are in place.

Cervical Spine

THIS DISCUSSION is primarily concerned with the liability connected with the so-called minor injuries of the cervical spine, that is, flexion-extension sprains. The term "whiplash" injury has been applied to these sprains, but this term describes the "kinematic behavior of the head and neck rather than any anatomical or pathological entity."[2]

I want to mention a few points in the treatment of the more severe cervical spine injuries: the fracture dislocations with spinal cord or nerve root injuries. The evaluation of disability in these cases does not present a serious problem, as it can be based on objective abnormalities disclosed by careful neurological examination. Some twenty-five years ago skeletal traction began to be used for the reduction of cervical spine fracture dislocations. Fig. 1 is a lateral roentgenogram taken before application of the tongs and shows dislocation of the first cervical vertebra on the second. Fig. 2 is another lateral roentgenogram showing an early set of tongs in place and satisfactory reduction of the dislocation. (Such crude early apparatus has been replaced by more refined skull tongs which are now used routinely in the care of cervical spine injuries.)

Prompt and thorough conservative management of the patient with cervical spine fracture dislocations can prevent serious sequelae and assure satisfactory recovery. Physicians must be alerted to the influence of socio-economic factors involved in injuries of this kind.



Fig. 3. Lateral roentgenogram of cervical spine of a patient with anterior dislocation of the sixth cervical vertebra without signs of spinal cord injury.

Injuries

HAROLD C. VORIS, M. D.
Chicago, Illinois

Laminectomy

The role of decompressive laminectomy in cervical spine injury with associated spinal cord injury has been debated for many years. At present, current neurosurgical opinion favors decompressive laminectomy when reduction cannot be obtained by skull traction or where bony impingement on the spinal canal is demonstrable by X ray after reduction has been accomplished. It must be remembered that severe deformity of the cervical spine may be unaccompanied by neurological signs or symptoms. Fig. 3 is the lateral roentgenogram of such a case.

Recently the anterior body fusion suggested by Cloward[3] has offered a more satisfactory way of fusing the cervical spine at one or two intervertebral joints than the classical methods of posterior fusion afford. As Cloward points out, this operation can be done more rapidly and with much less trauma and blood loss. It must be emphasized, however, that there is considerable risk of operative damage to the spinal cord in inexperienced hands.

Case History

The following case report illustrates the use of this method of cervical spine fusion.

Case 1

C. H. a forty-eight-year-old white man was seen October 14, 1960. He had been injured one week previously when some one hundred pound sacks fell on him. Since that incident he had complained of pain and stiffness in his neck and shoulders, with weakness and numbness of his left hand, loss of abduction of the left shoulder, moderate weakness of the grip of the left hand, and diffuse impairment of sensation to pin prick in the left upper extremity.

Roentgenograms of his cervical spine revealed anterior dislocation of the fifth cervical vertebra on the sixth (Fig. 4). He was placed in halter traction with eight pounds weight, and reduction was accomplished in twenty-four hours (Fig. 5). The pain in the neck and shoulder was entirely relieved. Four days later a plaster cast was substituted for the halter traction, but pain recurred in the neck and shoulder and an X ray two days later showed recurrence of the dislocation (Fig. 6). The cast was removed and the patient placed in skull traction with Crutchfield tongs. The dislocation was again promptly reduced with corresponding relief of the patient's pain.

One week later anterior body fusion was carried out. Fig. 7 is a postoperative lateral roentgenogram showing the grafts in place between the bodies of the fifth and sixth cervical vertebrae. A few days later the skull traction was removed and a cast substituted. The patient's course was thereafter uneventful. Fig. 8 shows the roentgenographic appearance eight months later, when the patient was working and free of symptoms.



Fig. 4. Lateral roentgenogram of patient with anterior dislocation of the fifth cervical vertebra.



Fig. 5. Lateral reotgenogram of the cervical spine of the same patient as in Figure 4 after reduction by halter traction.

Mechanical Forces

During the past decade, cervical sprains have become increasingly important from a liability standpoint[1,5,9] since they have been "discovered" by attorneys specializing in personal injury cases. It may be noted that Davis[4] in 1945 was apparently the first to use the term "whiplash." He described it as hyperflexion followed by spontaneous extensor recoil and stated that it was generally due to "head-on" collisions. It was his opinion that the posterior longitudinal ligament was often injured.

While "head-on" automobile collisions still frequently occur, at the present time so-called "whiplash" injuries are most frequently seen in "rear-end" collisions[6] and are suffered by the occupants of a halted or slowly moving vehicle which is struck from the rear by another vehicle. Obviously from a mechanical standpoint under such circumstances, the head of the patient is initially thrown backward with hyperextension of the cervical spine. The head may then snap forward as the vehicle and consequently the body of the patient come to a halt. The breaking loose of the front seat in severe rear-end collisions illustrates the force with which the body is suddenly propelled forward and the following violent hyperextension of the unsupported head.

Case Histories

Here I want to give briefly two case histories that illustrate some important points in connection with these injuries.

Case 2

C. J., a forty-three-year-old white woman, was first seen in August, 1947. Six weeks before, the automobile



Fig. 6 Lateral roentgenogram of the cervical spine of the same patient as in Fig. 4 showing recurrence of the dislocation.



Fig. 7. Lateral roentgenogram of the cervical spine immediately after anterior body fusion of the fifth and cervical vertebrae. Same patient as in Fig. 4.

in which she was a front seat passenger, while halted, had been struck from the rear by another vehicle. She suffered a cervical sprain and had had continous posterior cervical and occipital pain. In addition, she complained of recurrent numbness of all the fingers of both hands. Neurological examination was negative.

This patient was hospitalized by her family physician and was treated with halter traction and physiotherapy. She then wore a cervical collar (Jewett) for several months. Her complaints persisted, and in March 1949 a cervical myelogram revealed a filling defect on the left at the C5-C6 interspace. Further treatment with cervical traction followed by the use of the cervical collar failed to relieve her symptoms.

Finally in March 1950 she was operated on and decompression of the sixth cervical nerve roots and removal of bilateral osteophytes anterior to both sixth cervical nerve roots were carried out. Her convalescence was satisfactory from a general standpoint, but pain and stiffness in the neck and pain and numbness in the upper extremities persisted unabated. At no time were any objective neurological abnormalities found. Her suit against the insurance company was settled in November 1950, nearly three and one-half years after her injury and eight months after operation. Two weeks later she came to the office and said that her complaints had greatly improved and that she wanted a statement authorizing her return to work as a telegraph operator.

Case 3

The second case involved a forty-eight-year-old single woman physician seen on January 24, 1958. Twenty-four hours earlier the car which she was driving had been struck from behind by another vehicle, the front seat being broken by the impact. She suffered immediate pain in her neck. Any movement of it was painful, and she complained of severe occipital headache, diplopia, blurred vision, marked dizziness, and difficulty in swallowing.

Examination revealed anterior flexion of the cervical spine to be acutely painful; other movements were only moderately so. There was mild bilaterial incoordination on the finger to nose test, uncrossed vertical diplopia with the red glass, and hypesthesia to pin prick over the left posterior cervical and occipital region including the posterior aspect of the external ear.

The patient was treated with traction, physiotherapy, rest and sedation. She left the hospital after four days. One week after the injury she was much improved subjectively, but there was still some hypesthesia to pin prick in the left posterior cervical region and over the left ear, and there was inconstant diplopia with the red glass. On the insistence of her medical associates she took a month's vacation and then returned to her practice. In July 1959 she had an acute recurrence of symptoms for two or three days, but this episode responded promptly to rest and physiotherapy. She has remained well since.

Comments

The marked contrast between the duration of disability in these two women of the same age but markedly different personalities is striking. It does not appear that the operation performed on the first patient had any significant value in relieving her symptoms, since they persisted after operation for some eight months and then rapidly abated after settlement of her case. In Gottens'[7] series of 100 patients with this type of injury only two were operated on. Gay and Abbott[5] operated for cervical disc protrusion on two of

fifty patients with "whiplash" injuries. It is not likely that flexion-extension sprain is a significant factor in the production of cervical disc protrusions.

The early neurological examination of the second patient throws considerable light on the cause of the symptoms in this type of injury. The pain on anterior flexion of the spine and the difficulty in swallowing indicate injury to the prevertebral structures, especially the anterior longitudinal spinal ligament. The impairment of sensation found in the left posterior cervical and occipital region corresponds to the distribution of the second cervical root and indicates contusion of that structure. Hunter and Mayfield[3] and Seletz[10] emphasized the vulnerability of this nerve to injury.

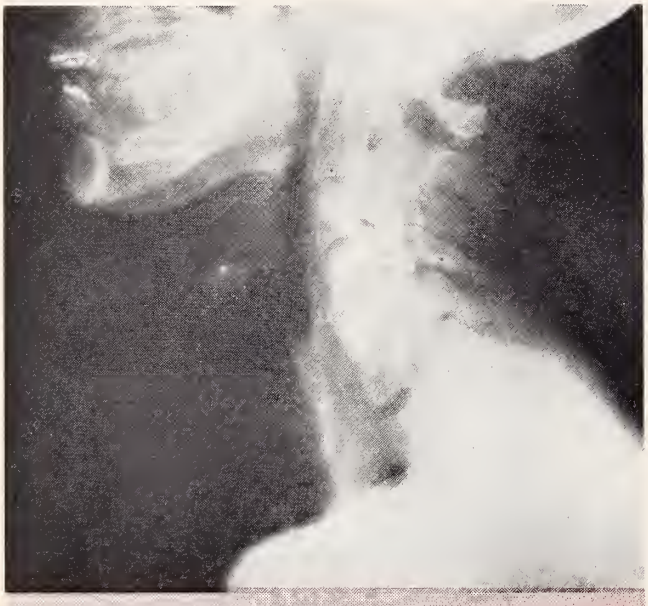


Fig. 8. Lateral roentgenogram of the cervical spine eight months after anterior body fusion of the fifth and sixth cervical vertebrae. Same patient as in Fig. 4.

The significance of the patient's diplopia and dizziness is more difficult to evaluate but suggests associated cerebral concussion. She did not lose consciousness, but the violent sudden movement of the head in such injuries may cause reflex vascular changes in the brain stem comparable to those seen in direct blows to the head. A considerable number of patients with so-called "whiplash" injuries do describe transitory loss of consciousness.

Summary

Flexion-extension sprains of the cervical spine ("whiplash" injuries) produce damage to the anterior spinal ligament and other prevertebral structures. Cervical nerve roots, especially the second cervical, may be injured. There may be associated symptoms of cerebral concussion. Injury to bony structures or cervical intervertebral discs is rare. The symptoms of the soft tissue injuries are usually reversible but often become chronic. The presence of legal liability seems to be a factor in the persistence of symptoms, but the most important factors are the personality and attitudes of the patient. These latter can be and are influenced by physicians, friends and relatives, and at time by attorneys.

Early treatment should be prompt and thorough. Rest, cervical halter traction, physiotherapy and sedatives are all of value. Treatment should not be continued, however, after the acute phase of the injury is over. On the contrary, graduated exercise and return to normal activity should be urged.

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Farm Trauma

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A thoughtful and provocative statement about an important and difficult problem. Aroused physicians can unite to help remedy health hazards. Trauma of all kinds and from all sources needs our attention.

THE TRAUMATIC injuries seen in metropolitan hospitals are usually secondary to automotive and industrial accidents. Injuries of the latter type have been thoroughly studied and continue to receive attention from safety directors, industrial physicians, and surgeons who handle trauma. As a result, the number of industrial accidents has been reduced and, in general, kept at an acceptable minimum. Farm trauma, on the other hand, has received only scant and inadequate attention. While industrial accidents are reported and analyzed as a matter of routine, accurate statistics on farm accidents are impossible to obtain. The injuries are treated at multiple small rural hospitals, with no central agency tabulating the combined experience of the many physicians who treat the farmer.

Incidence of Serious Farm Injuries

In Minnesota in 1961 there were 43 deaths from tractor accidents and two corn-picker fatalities. Newspapers of the Minnesota Newspaper Association reported 18 injuries in which some or all of the fingers and the thumb were lost, nine cases in which a hand was lost, and one case in which an arm was lost, all as the result of corn-picker injuries.* Since the National Safety Council estimates 50 nonfatal tractor accidents for every fatality, we can assume at least 2,150 tractor accidents in Minnesota in 1961. Considering the number of farm implements that are at least as lethal as the tractor, and the number of states in which farming constitutes a substantial segment of the economy, the serious nature of farm trauma becomes obvious.

* These figures were obtained from the Institute of Agriculture of the University of Minnesota.

Economic Factors

From an economic standpoint industrial accidents are of serious financial concern, not only to the injured employee, but to the employer and the insurance companies. The employer has a financial motive in striving to reduce the number of time-loss injuries and will therefore encourage safety measures to that end; the farmer, on the other hand, is usually self-employed, so that he alone suffers financially from an injury. Furthermore, there is no large organization financially motivated to encourage farm safety. Finally, farm trauma is not well publicized in medical literature. Doctors in metropolitan hospitals are much more inclined to publish papers on the traumatic injuries they treat than are the general practitioners and surgeons in rural communities, who care for the injured farmer.

The Nature of Farm Injuries

The nature of farm operation has changed radically in the last 30 years; the national economic farm problem bears ample testimony to this fact. As the mechanization of farming has greatly increased the productivity of the individual farmer, it has also increased proportionately the danger to his well-being. Many farm machines are complicated implements. An industrial employee assigned to the operation of a device as potentially dangerous as a corn picker would undoubtedly receive a thorough indoctrination in all the complexities of the machine; also a list of safety precautions would be placed in a prominent position on the machine. If the mechanism started working in a faulty manner, it would immediately be taken out of operation until repaired by an expert; then if a modification were introduced to make the machine more efficient, the worker would be fully apprised of the change. He would then operate the machine eight hours a day five days a week until its operation was "second nature" to him. If in spite of all these precautions an accident should occur, the entire operation would be reviewed and a remedial procedure instituted.

The Circumstances of Farm Injuries

The average farmer, on the other hand, operates a corn picker about 10 days a year; he uses the combine, the silage unloader, the manure spreader either a few minutes each day or a few days each year. He learns how to operate these machines from his father, from his employer, or from the implement dealer who sells them to him, with his instructions in safe operation consisting of a few general statements which could well be summarized as "Be Careful." If the machine refuses to function, he will repair it with whatever tools he has at hand and will continue to operate it as best he can. Furthermore, when he is using an implement he is *always* in a hurry, and as there is an optimum time for planting, harvesting, etc., he will work from sunrise to sunset regardless of fatigue. Furthermore, if he can increase productivity by buying a later model with a few improvements, he will do so and will learn to operate it by a process of trial and error. If he or one of his employees receives a minor injury, he will obtain the most immediate care available, resolving to be more careful thereafter, but ignoring his resolution as soon as he is again pressed for time. Under these circumstances it is not surprising that farm accidents, minor and major, are numerous.

Case Histories

I have selected a few of the many cases seen annually in a community hospital centered in a farming area, which will illustrate the avoidable conditions that produce many casualties.

Case 1

A 72-year-old farmer was unloading silage about 6:00 p.m. He shut off the mechanism and stepped to the back of the tractor to sweep out the last few fragments of silage with his hand. His 5-year-old grandson, who had been sitting next to him, started the unloader while the farmer's hand was beneath the rollers, which pulled his arm into the rotating prongs up to the mid-humerus. He sustained several large puncture wounds of the forearm and a fracture of the radius and ulna. All wounds were grossly contaminated with corn, grass, and wood. Treatment consisted of debridement and loose closure with reduction and immobilization of the fracture. One wound extruded corn even after a few weeks. The bones healed in fair alignment. He has a residual loss of pronation of about 45 degrees and a loss of 30 degrees elbow extension, but continues to work actively on his farm.

Case 2

A 25-year-old farmer was loading corn into an auger when his jacket became entangled in the moving gear and his sleeve was pulled into the machinery. A palmer flap of skin and subcutaneous tissue was laid back, and corn, dirt, and grass ground into the denuded areas. The profundus and sublimis tendons and digital nerves of the second, third, and fourth fingers were cut. The wound was copiously irrigated, debrided, and the

flap resutured, though its blood supply appeared precarious. The flap did not survive and the wound became infected. The palm was eventually resurfaced with a free skin graft and the nerves were resutured. He later developed infection in the interphalangeal joints of his index finger with resulting stiffness. His hand is now functional, but as yet not suitable for any attempt at tendon grafting or other reconstructive procedure.

Case 3

A 61-year-old man was harvesting grain when his combine jammed. He tried to kick it free without turning off the motor, thus injecting his foot into the rotating gears. He managed to pull it loose, hobbled to his truck, and drove for help. As the foot was cut into shreds, amputation was necessary. He now wears a below the knee prosthesis.

Case 4

A 48-year-old man was using a manure spreader. As he reached across the back of the machine to unlock a gear, he leaned against the tractor drive shaft, which hooked onto his overalls, spun him around, and pulled off his overalls, pants, shirt, and underwear, leaving him with only his shoes and socks and a small fragment of his jacket. He sustained a fracture of the mid-humerus with a radial palsy, a severely contused shoulder with rupture of the biceps, tendon, fractured ribs with a complete right pneumothorax, and loss of the left half of his scrotum. Fortunately his testicle was unharmed. He walked a quarter of a mile for help. The fractured humerus was treated in olecranon traction; a chest tube was inserted; the scrotum was irrigated and the edges pulled over the testicle; but radial nerve function never returned and open repair was required after the wounds healed. He is now recuperating nicely.

Case 5

A 38-year-old man was operating his tractor late one Saturday evening when a belt came loose. As he tried to replace it, his jacket became entangled in a gear of the drive shaft and his arm was pulled into the mechanism. He sustained multiple grossly contaminated wounds of his arm and forearm, and a large flap was elevated from his antecubital fossa. His only bone injury was a comminuted fracture of the base of the fourth metacarpal; fortunately no major nerves or vessels were transected. His wounds were debrided, irrigated, and loosely closed; his arm and his hand were splinted; and he recovered uneventfully.

In brief, the above five cases point up dramatically and forcefully that: (1) children should be kept away from farm machinery; (2) elderly farmers should not expect to retain the quick reflexes and accurate responses of their youth; (3) loose clothing around machinery is a hazard; (4) machinery should be turned off before it is tinkered with; and (5) fatigue and haste invite disaster.

Comments

General practitioners care for the vast majority of those injured on farms, and they learn to expect a seasonal influx of particular injuries. They know when certain farm implements will be in use, and it is a rare season in which a community hospital does not receive several casualties from each variety of machine. Some of the injuries kill the farmer; most of them maim him. Frequently the wounds are so gross that only an amputation is possible. Virtually all of the wounds are so heavily contaminated with dirt, corn, grass, and manure that primary treatment must be restricted to cleansing, debridement, and immobilization. Immediate treatment by trauma experts or a barrage of specialists, obviously impractical in rural areas, would not help appreciably in reducing the toll in morbidity and mortality. The doctors who care for these injuries, whether surgeons or general practitioners, are usually well versed in the principles of wound care, and the injuries generally preclude the use of any techniques requiring introduction of a nonabsorbable foreign body. Reconstructive surgery, if feasible, can be done later.

Prevention

The obvious remedy for the depressing toll in morbidity and mortality associated with farm accidents is prevention. Dynamic programs for safety are already functioning. Organizations such as the Future Farmers of America run seasonal campaigns to impress farmers with the need for caution in using their implements. Safety is continually emphasized in the agriculture courses taught in the rural high schools. Symposia on safety directed at teachers of agriculture and farm machine manufacturers are annual affairs in states where farm trauma is a serious problem. The discouraging fact remains, however, that all these methods reach only a small segment of the farm population.

Manufacturers of farm machinery could make a great contribution to farm safety by providing shields for most of the moving parts; but unfortunately there are almost insurmountable objections to such modifications. Shielding would substantially increase the price of farm machinery, and such price increases have already produced an economic crisis which threatens the existence of all but the largest farm operation. For this reason — and because shielding would make it

difficult if not impossible for the farmer to grease, oil, and otherwise maintain his implements — the farmers themselves would oppose such modifications. Many farm machines are already equipped with removable shields which fit over some of the moving parts, drive shafts particularly; but observation shows that most of these shields rest in the barn all year long, a fact which naturally discourages any more vigorous attempts by manufacturers to introduce further safety devices.

Summary

The role of the doctor in preventing farm accidents must be chiefly catalytic. Through contact with his farmer patients he may be able to stimulate interest in safety education; he can certainly warn them of the results of carelessness as seen by a physician. Unfortunately, however, the major contribution the doctor can make will continue to be immediate and skilled repair of injuries.

White Lightning

Whether or not it is of enviable fame, North Carolina claims to be the largest producer of illicit whiskey in the nation. The use of this illicit whiskey is cautioned against in that it may produce lead encephalopathy, because of the custom of flavoring the mash with an occasional automobile battery and the use of old automobile radiators as condensers in the process of distillation. From these sources lead may contaminate the whiskey. The whiskey is called "White Lightning."

Robert W. Willette
North Carolina Medical Journal
Vol 2421 - 1963

The National Registry of Deaths from Mycetism maintains a file of deaths attributed to ingestion of wild mushrooms (1957 to date).

Physicians are requested to send notice of all such deaths (age, sex, date, locality) to the undersigned.

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Rule of Law

Parliamentary rule can be just as autocratic as the rule of kings unless it is devoted to the express purpose of defending four basic economic principles. These are individual ownership of property, freedom of enterprise, sanctity of contract, and freedom to compete for consumer support. — Cliff S. Emeny

Histoplasmosis and Histoplasmin Sensitivity in Minnesota

Histoplasmosis in North America was first discovered in Minnesota. Over the years it has remained a geographically localized problem. In areas where sensitivity occurs, it is in the range of 40%. Practicing physicians will find this subject of great clinical interest.

See Editorial on page 363
X-Ray Conference on page 375

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MINNESOTA is in a rather unique position with respect to histoplasmosis. The first known case in North America occurred in 1925 and was reported in 1926 by Reilly and Watson.[1, 2] The case involved a 52-year-old woman, a resident of Excelsior Village, Hennepin County, who had lived in Minnesota since the age of seven. The disease was of the disseminated type and terminated fatally. The second Minnesota case was not recognized until 19 years later.[3] Subsequent case reports came principally from the central portions of the United States, and it was in this area, rather than in Minnesota, despite its primacy in the field, that the clinical and epidemiologic features of the disease were worked out.

These years (1925-1945), and especially those since the 1940's, have changed the concept of histoplasmosis as a rare fatal disease to that of a widespread, usually benign and even a symptomatic disease.[4, 20] During this time there also occurred, temporarily, a loss of confidence in the tuberculin test; X-ray films were turning up, showing calcifications in tuberculin-negative individuals. These calcifications were ultimately ascribed to a histoplasmosis infection. The names most prominently associated with these activities are those of Palmer[4] and of Christie and Peterson.[5]

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Table 1
MINNESOTA DEPARTMENT OF HEALTH
Division of Disease Prevention and Control
Cases of Histoplasmosis in Minnesota by Year of Occurrence and Clinical Type
1925-October, 1961

Year	Clinical Type: Disseminated	Acute Pneumonic	Chronic Pulmonary	Localized	Mild Illness	Totals
1925	1(1)*					1
1943	1(1)*					1
1947		1				1
1948		8(2)*				8
1949		6	1(1)*			7
1950		1		1		2
1953	1(1)*	1				2
1954		2				2
1955	1(1)*	4	1			6
1956		7	1		3	11
1957		7	1			8
1958		6(1)*	2	1		9
1959		2(1)*		1		3
1960	1(1)*	6(1)*				7
1961		2				2
Totals	5(5)*	53(5)*	6(1)*	3	3	70

*Numerals in parentheses denote fatalities.

Of first importance in the epidemiology of histoplasmosis is geography. Figure 1, which shows the areas of high sensitivity to the histoplasmin test, is a map that is probably well known to many physicians. It is apparent that the "heart land" of histoplasmin sensitivity is in the valleys of the Missouri - Mississippi and Ohio Rivers systems. More recently, reports of small epidemics of histoplasmosis in other areas of the United States, combined with histoplasmin skin testing, have brought some revisions of the geographical distribution of histoplasmosis.[6-8] [11-18] These areas outside the "heart land" are shown in the figure and are located particularly in the states of New York and Pennsylvania. The sites of epidemics are shown as black dots. The figure also shows that Minnesota, although outside the region of high sensitivity, has three areas in which localized epidemics have occurred.

It is the purpose of this paper to review what is known about the prevalence of histoplasmosis in Minnesota and to report on histoplasmin skin test surveys conducted by the state health department. It will attempt to show that, although Minnesota, as a whole, appears to be outside the area of high histoplasmosis incidence, there are several small areas where endemicity of the disease is suspected.

Cases of Histoplasmosis in Minnesota

Histoplasmosis is not a reportable disease in Minnesota; therefore the roster of cases had to be compiled by other means. Some of the cases are the by-product of tuberculosis reporting. A search of the literature was made to add other cases formally reported in the medical journals. More recently, a system of correspondence surveillance based on requests to the laboratory for complement fixation tests has been instituted, and this procedure has disclosed additional cases. Further, only indigenous, clinically-symptomatic cases are considered. The asymptomatic reactors to histoplasmin and those with pulmonary calcifications alone have not been counted.

Five clinical types of the disease are recognized: the acute disseminated form, the acute pneumonic, the chronic pulmonary, the localized lesion, and the mild type, this last sometimes described as the "influenzal" form of the illness.

As of this writing, 70 cases have been accepted covering the years 1925 to October, 1961. Table 1, which shows these cases by clinical type and by year of occurrence, is self-explanatory and in general shows an accelerated incidence from 1955 on, probably the result of increased interest, aroused by the skin testing surveys which started in 1955. By 1958 there appeared to be enough interest in the disease to justify the state health department laboratory in doing its own complement fixation tests for histoplasmosis. Prior to 1958,

specimens were forwarded to the Communicable Disease Center in Atlanta for testing.

Table 2 is arranged to show the cases by age and by clinical type. Here a number of phenomena are immediately apparent. The disseminated form of the disease is characteristic of the extreme ages of life; the acute pneumonic form of the disease is the most common of the clinical types and characteristically occurs in young and middle adulthood; the chronic pulmonary form occurs mostly in the later decades of life. There are only three examples of localized disease[9, 10] and only three of the mild type. However, it is not difficult to understand how a mild "influenzal" type of illness would escape thorough study. The disseminated form of the disease has been universally fatal; the mortality rate for the acute pneumonic form is about 9 per cent; the chronic pulmonary type is more serious carrying a mortality rate of 17 per cent. While not shown in the tables, the ratio of male cases to female cases is of the order of 2:1.

The disease has occurred both sporadically and in epidemics in Minnesota, the locations shown in figure 2. The first recorded epidemic occurred in Becker County in 1948,[6] when six people were involved and the fungus Histoplasma capsulatum was later recovered from the soil under their kitchen. The next documented epidemic occurred in two episodes in Wright County,[11,12] the first in 1949 involving six individuals, and the second in 1953 involving two persons from the same household. The recovery of the organism from the bone marrow of one of the latter solidly established the diagnosis. In 1956 an epidemic involving five men occurred in Brown County. The men were working around the basement windows of a church, the wells of which were filled with pigeon feces and feathers. No fungus was recovered from this detritus, but the diagnosis was established by complement fixation tests. Three of these cases were of the mild "influenzal" type, and two showed definite pulmonary infiltrates.

Histoplasmin Skin Test Survey

During the latter part of 1955, the attention of the state health department was called to the lack of comprehensive and current information on the prevalence of histoplasmin reactors in the state. Some histoplasmin testing had been done by Palmer,[4] Myers et al.,[21] and Sachs at al.,[19] the results of which surveys will be considered later. Accordingly, plans were made to attach histoplasmin skin surveys to tuberculin surveys already scheduled. These simultaneous surveys were the rule in the beginning; later, histoplasmin testing alone was carried out in a number of areas. The motives for histoplasmin testing in any given area were various. Where it was possible to attach to a scheduled tuberculin survey, the motivation was obviously opportunity. Some areas were entered on invitation by local physicians; other areas were tested because a case or cases had occurred there.

The testing was done primarily on school children and often limited to the students in junior and senior high school. The test was also offered to the faculty and other school personnel. In Hayfield, Dodge County, the testing was done on a community-wide basis, since the concomitant tuberculin survey was also

Table 2
MINNESOTA DEPARTMENT OF HEALTH
Division of Disease Prevention and Control
Cases of Histoplasmosis in Minnesota by Age and Clinical Type

Age	Clinical Type: Disseminated	Acute Pneumonic	Chronic Pulmonary	Localized	Mild Illness	Totals
0- 4	2	1				3
5- 9		3				3
10-14		2				2
15-19		7		1		8
20-29		12	1	1	2	16
30-39		7	1			8
40-49		7	1	1	1	10
50-59	2	10	1			13
60 and over	1	4	2			7
Totals	5(5)*	53(5)*	6(1)*	3	3	70

*Numerals in parentheses denote fatalities.

community-wide. Here therefore, the adult representation was good, comprising about 47 per cent of the tested population.

The material used was histoplasmin HKC-5 in the dilution of 2:1000*, a dose of 0.1cc administered intracutaneously on the volar surface of the right forearm. The left forearm was reserved for tuberculin testing, where the two programs were of a simultaneous nature. Each test was read in 48 hours (in a few instances 72 hours) after administration. A positive result consisted of an area of induration with a transverse diameter of five millimeters or more. Histoplasmin is apparently a good antigen, as, on the whole, the reactions were sharply defined and easy to read.

Further, in the final tabulation, only lifetime residents of Minnesota were counted, a lifetime resident being defined as one who had spent five sixths or more of his total life in Minnesota and less than six months in the core of the histoplasmosis belt. For the latter purpose, the states considered were Missouri, Arkansas, Tennessee, Kentucky, Illinois, and Indiana. This definition of life residency is perhaps a little more stringent than that used by others working in the field.

Table 3 and figure 3 are summaries by county of the reactor rates obtained in those counties where testing was done. The numbers involved in the surveys varied from 278 in Carver County to almost 4,000 in Wright County. Despite the relatively small number tested in Carver County, this area showed the highest degree of sensitivity with a reactor rate of 25.9 per cent; the county with the lowest show of sensitivity was Koochiching with a rate of 0.3 per cent. The other county with an appreciable amount of sensitivity was Hennepin with a rate of 24.8 per cent. The over-all or state rate, as measured by the results in the table, comes to not quite 5 per cent. It is apparent that, in general, the reactor rates in the individual counties are low, but there are areas where the rates are relatively high. As will be shown later, even a county with a low over-all rate may contain within it a nidus of substantial sensitivity.

Table 3

MINNESOTA DEPARTMENT OF HEALTH
Division of Disease Prevention and Control
Prevalence of Histoplasmin Reactors in Counties Tested
(Life Residents Only)

County	Total Number Tested	Per Cent Over Age 20 Years	Per Cent Positive
Anoka	960	3.2	2.5
Becker	1073	8.5	2.1
Benton	755	4.8	.8
Brown	350	8.3	3.7
Carver	278	7.0	25.9
Dodge	531	46.9	2.4
Hennepin	793	3.7	24.8
Koochiching	673	3.7	.3
Mahnomen	747	3.6	1.5
Mille Lacs	433	.2	1.8
Otter Tail	3039	7.5	1.2
Pope	301	11.6	.7
Redwood-Renville	510	12.3	3.3
Wabasha	762	7.0	4.7
*Wright	3949	—	7.8
Totals	15,044	6.0	4.9

*From Sachs, D. et al.

The same table shows the adult participation in per cent of volunteers over the age of 20 years. The purpose of including this information is to show that there is no fast relationship between an area of high sensitivity and the number of adults tested. For example, in Dodge County, the adult participation was high (46.9%) and yet the over-all sensitivity was low (2.4%). On the other hand, in the two areas of highest sensitivity, Carver and Hennepin Counties, the adult participation was only 7.0 and 3.7 per cent respectively. It appears that histoplasmin sensitivity is a thing sui generis not entirely dependent on increasing age. Two conclusions may be inferred: first, histoplasmin sensitivity, if acquired at all, is acquired early in life; second, a school survey is adequate enough if one wishes to roughly gauge sensitivity in any given area.

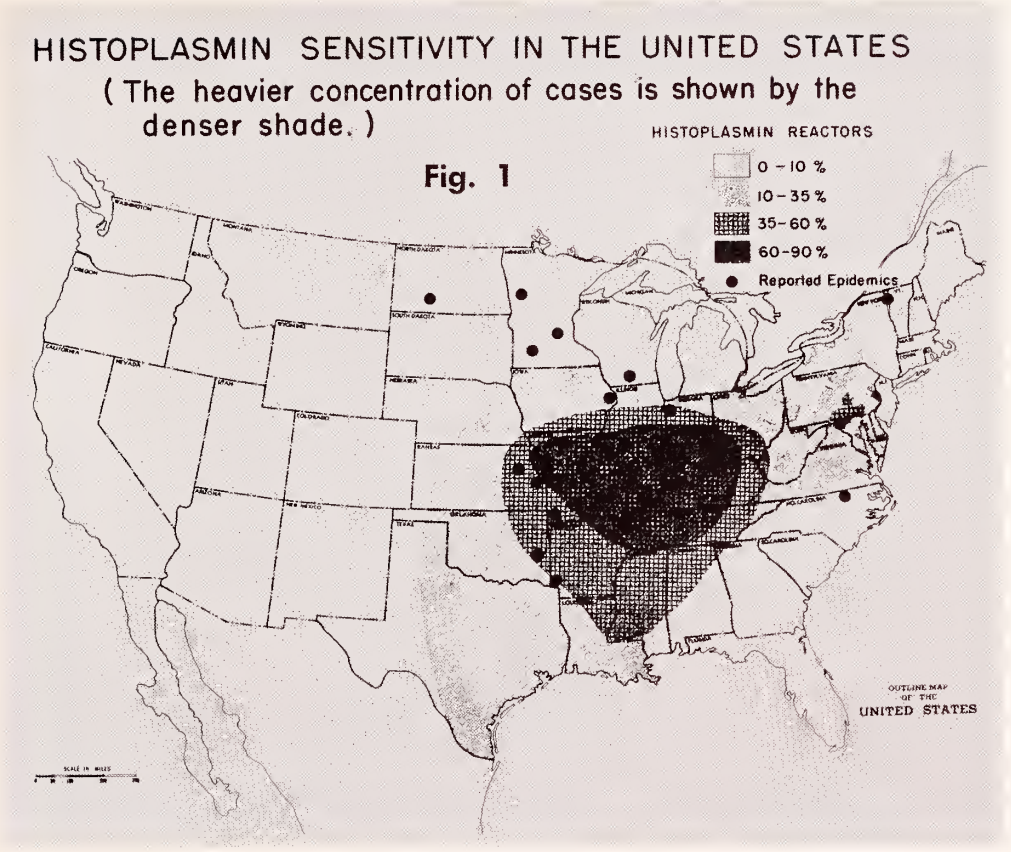
The age distribution of histoplasmin reactors in Minnesota as a whole is shown in table 4.

Table 4

MINNESOTA DEPARTMENT OF HEALTH
Division of Disease Prevention and Control
Age Distribution of Histoplasmin Reactors, Minnesota

Age	No. Tested	No. Positive	Per Cent Positive
0- 4	4	0	.0
5- 9	1948	81	4.2
10-14	6103	223	3.7
15-19	6082	386	6.3
20 and over	907	54	5.9
Totals	15,044	744	4.9

* Supplied by Dr. M. L. Furcolow, Kansas City Field Station, Communicable Disease Center, U. S. Public Health Service.



A more precise demonstration of the effect of age and sex on histoplasmin sensitivity is shown in table 5. These data are from Mound, a village of relatively high sensitivity in Hennepin County, where more intensive studies have been and are being carried out. It can be seen that in this locality the reactor rate in the first decade of life is already 8.0 per cent; in the second decade, which includes the school years, the rate has jumped to 35.5 per cent; and in the decade of early adulthood the peak rate of 66.7 per cent is reached. Thereafter, the rate levels off at a somewhat lower level. There are more male reactors than female reactors in the proportion of 41 per cent males to 3 per cent females. These rates by sex have been adjusted to compensate for the sex differential in the population sample, which was somewhat weighted with male participants.

In Koochiching County there were two adult reactors; one had formerly lived in Mahnomen County and the other originally came from

Table 5
MINNESOTA DEPARTMENT OF HEALTH
Division of Disease Prevention and Control
Age Distribution, Histoplasmin Reactors; Mound, Minnesota, 1958

Age	No. Tested			Reactors			Reactors (%)		
	M	F	T	M	F	T	M	F	T
0— 9	32	19	51	2	2	4	6.3	10.0	8.0
10—19	119	81	200	45	26	71	38.0	32.0	35.5
20—29	2	1	3	1	1	2	50.0	100.0	66.7
30—39	8	23	31	5	11	16	62.5	48.0	51.6
40—49	31	42	73	17	16	33	55.0	38.1	45.2
50—59	19	16	35	7	9	16	37.0	56.2	45.7
60+	1	0	0	0	0	0	0.0	0.0	0.0
Totals	212	182	394	77	65	142	36.3	35.7	36.0

Adjusted rates: Male 41%
Female 36%

Wabasha County. One school boy reacted very well, but it was found that he had but recently moved from Illinois to International Falls. Of course he was not included in the final count.

In Mahnomen County, only three of the eleven reactors had ever lived outside of that county.

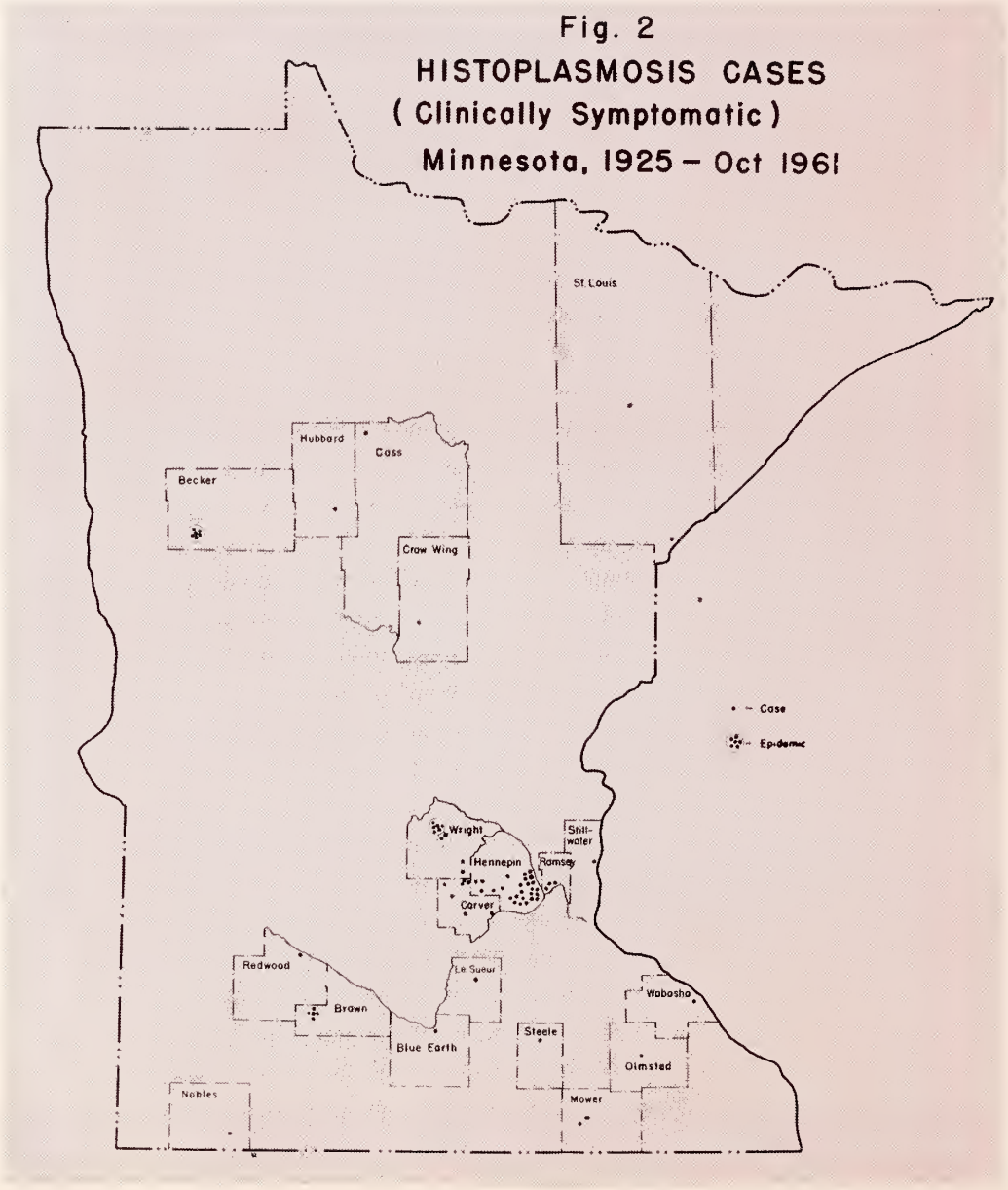
In Mille Lacs County three of the eight reactors were lifetime Mille Lacs residents; two had lived in Sherburne County; two in Wright County; and one in Isanti County.

The two reactors in Pope County had both lived in several other areas of the state.

Five of the 13 reactors in Dodge County had also lived in areas of the state outside of Dodge County itself.

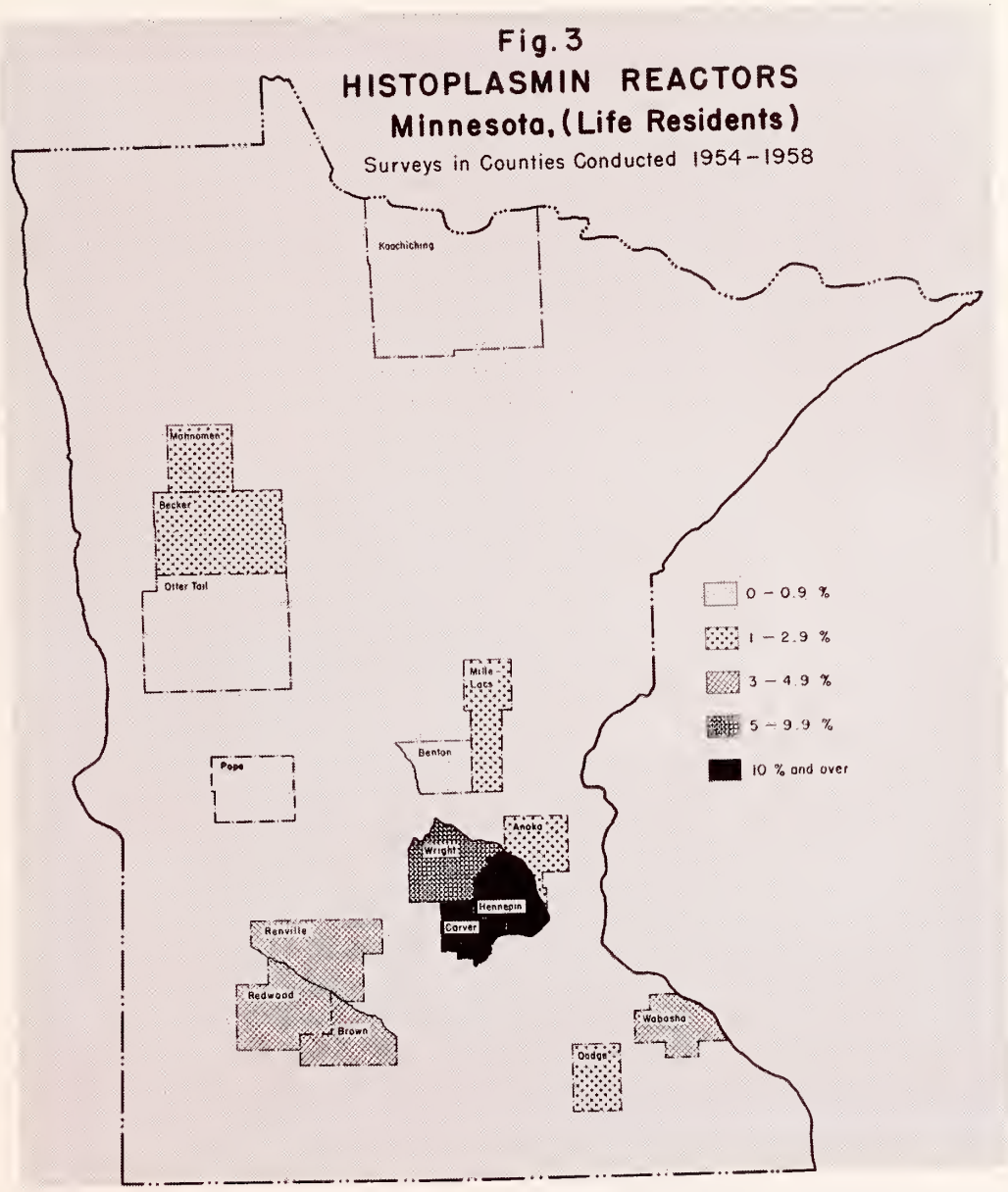
In Otter Tail County, the bulk of the meager total of reactors came from the village of Pelican Rapids. This village is about ten miles distant from Eunice Township in Becker County, an area which, as will appear below, must be considered a locale of endemicity for histoplasmosis.

It was in Becker County that the investigators got their first hint of how localized a phenomenon histoplasmin sensitivity can be. Testing had proceeded in Detroit Lakes, the large population center of the county, without any exciting results; but in the village of Audubon, twelve miles away, 100 high school children



were tested and seven reactors were found. The principal of the high school immediately noted that the seven reactors all rode the same bus route to school: a route which extended due south into Lake Eunice Township. Further investigation disclosed that the six cases which Rutedge[6] had reported in 1950 were an epidemic had occurred.

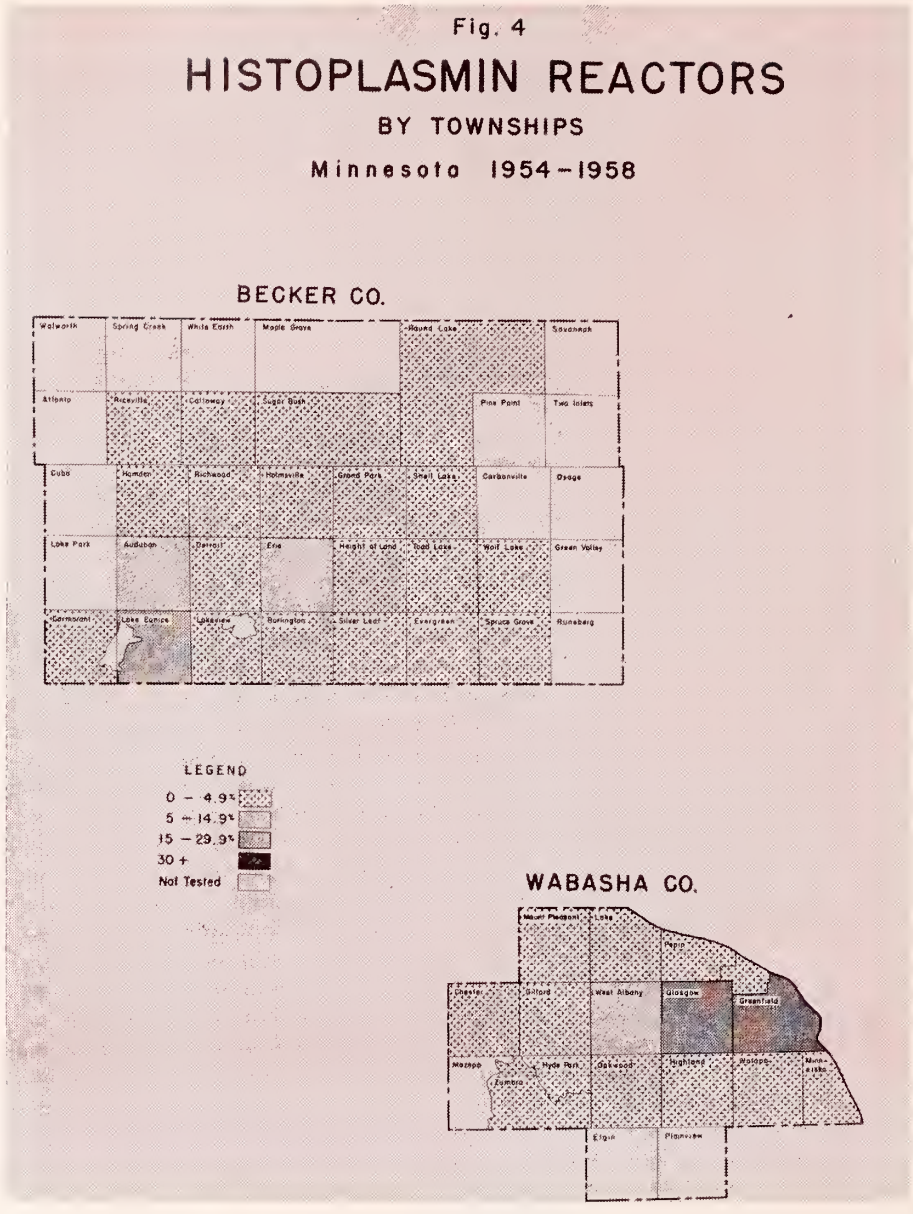
In Wabasha County the situation is analogous (figure 4). Here the over-all rate is barely 5 per cent, and again three townships are responsible for the major contributions to this rate. The three townships in question extend in



lived in this same township and but a good stone's throw from the bus route.

With this information, the reactor rates for Becker County were reworked on a township basis, with the results shown in figure 4. It is easily seen that the over-all reactor rate in this county is due in the main to the contributions of three townships and, in particular, to the contribution of Lake Eunice Township, tandem westward from the Mississippi River, with the Zumbro River, a tributary to the Mississippi, flowing through all three townships. By contrast, testing in Lake City produced inconsequential results. Lake City is one township to the north, and instead of being at water level, rests on a bluff overlooking Lake Pepin. The motive for testing in Wabasha County was the report of a case from Kellogg, a village just south of the city of Wabasha.

Fig. 4



In the Redwood - Renville County areas testing was done in the city of Redwood Falls in Redwood County and across the Minnesota River in the village of Morton in Renville County. It is again seen that the major contributors to the over-all rate of 3.3 per cent reside in a handful of townships. In Redwood County, the townships of Honner and Sherman yielded most of the histoplasmin reactors, both of these townships at water level along the Minnesota River. The city of Redwood Falls, situated on high ground above the Minnesota River, while furnishing the bulk of the participants, still was not the major contributor to the over-all rate. This "honor" belongs to the village of North Redwood in Honner township. In Renville County, three townships were the major contributors, and two of these fronted on the Minnesota River (Figure 5).

The situation with respect to Hennepin County and the three neighboring counties of Anoka, Wright, and Carver is depicted in figure 6. It is strikingly apparent in this figure that the areas of highest sensitivity surround Lake Minnetonka and appear to follow the course of the Minnesota River. In these four counties, using Lake Minnetonka as a center, sensitivity decreases in intensity as one travels northeast and northwest.*

* In a histoplasmin skin test survey conducted in December, 1961, and involving the older school children in the Jordon City, Scott County, schools, Dr. P. A. Stahler found a reactor rate of 22 per cent. It is interesting to note that Scott County is across the Minnesota River from Carver County, one of the state's areas of relatively high sensitivity.

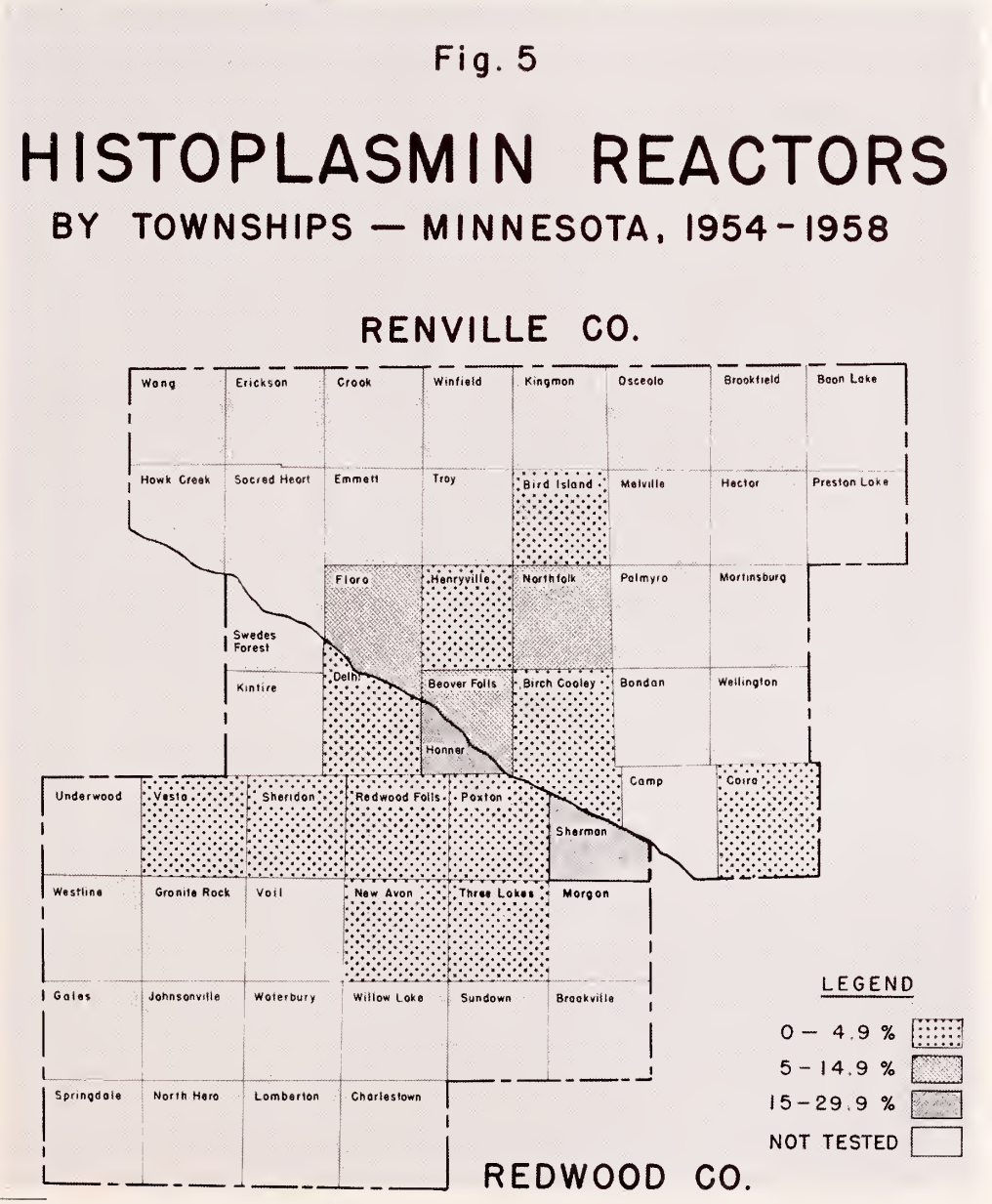
All of the above data point to a spotty distribution of histoplasmin sensitivity, and yet the spottiness is not without some pattern. The areas of high sensitivity are discovered to be in close proximity to water courses or lakes. A climatologist* has observed that in the water courses through the areas of relatively high sensitivity, the flow is sluggish and indeed, at times, the direction of flow is actually reversed. This suggests that flooding may be an important epidemiological facet in the natural history of histoplasmosis.

Other Skin Test Surveys

The first report of histoplasmin sensitivity in Minnesota was by Palmer in 1946;[4] in this study, 10,580 student nurses in 11 major cities were tested with histoplasmin. Palmer arbitrarily defined a life resident as one "who has spent five sixths or more of his total lifetime in one state." On this basis, 934 student nurses were lifetime residents of Minnesota, and 38 or 4.1 per cent of these were histoplasmin positive. The state was further subdivided into nine areas, and figure 7 is a map of sensitivity adapted from Palmer's article.

In 1954, following the recording of an epidemic of histoplasmosis in Wright County, Sachs et al.[19] surveyed 5,818 residents of that county, 3,949 of whom were considered life residents. They found an over-all rate of 7.8 per cent. Three townships had over 15 per cent positive reactors: Franklin with 29.8 per

Fig. 5



* J. Strubb, U. S. Weather Bureau, Minneapolis.

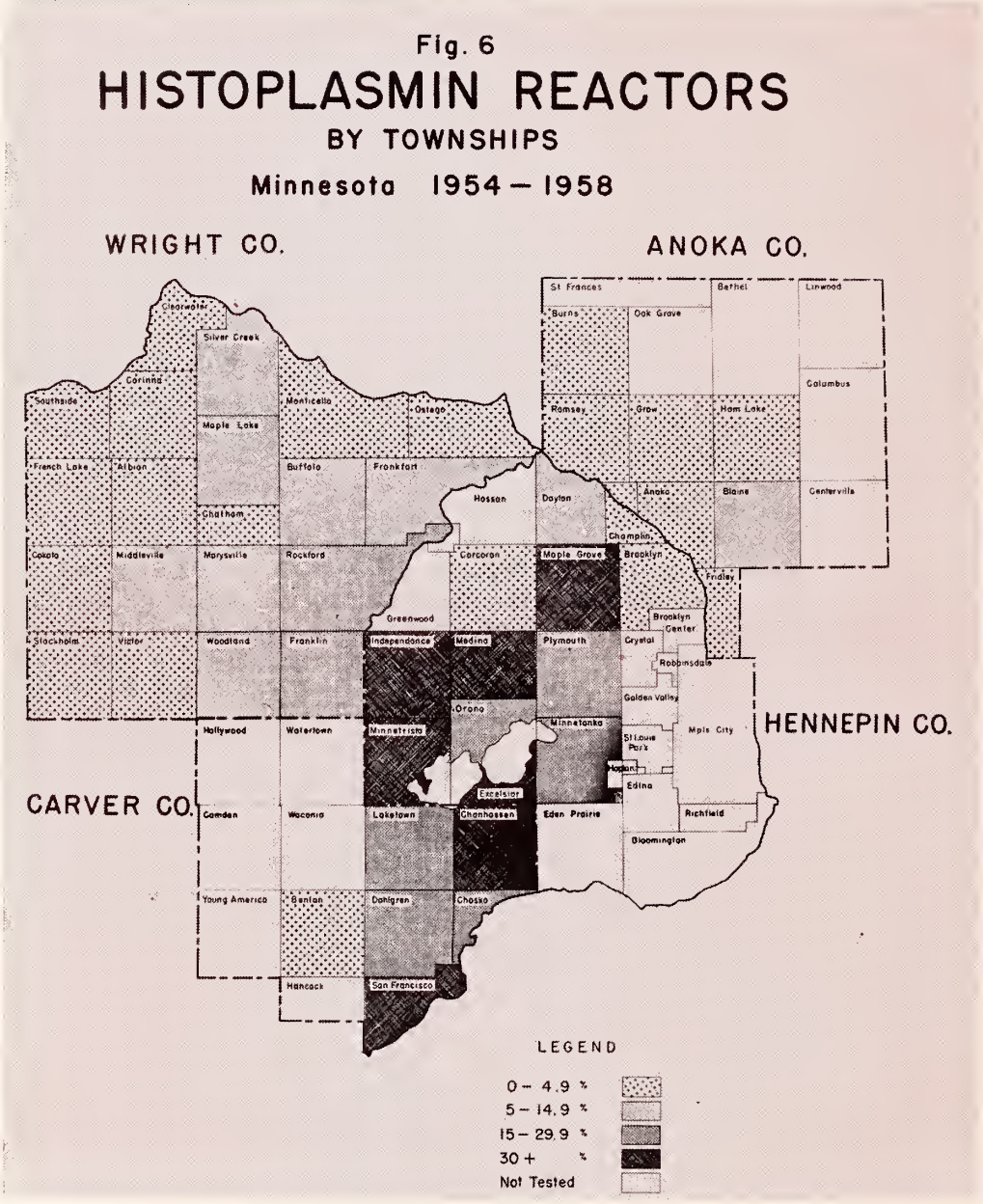
cent; Rockford, 25.9 per cent; and Woodland, 16.7 per cent. The work of Sachs et al. has been included in our table 3.

Myers et al.[21] surveyed 13,386 male students at the University of Minnesota, approximately three quarters of whom were veterans and 57.9 per cent twenty-three years or older. The residential history elicited the four longest residences by county; students were credited to

based on less than twenty residents.

There are differences in the distribution of histoplasmin sensitivity as seen in the work presented here and in the results of Palmer and Myers, some of which may be due to sampling differences. In both Palmer's and Myer's studies the subjects, in general, were all older; Palmer's work included only females, while Myer's surveyed only males. Then too

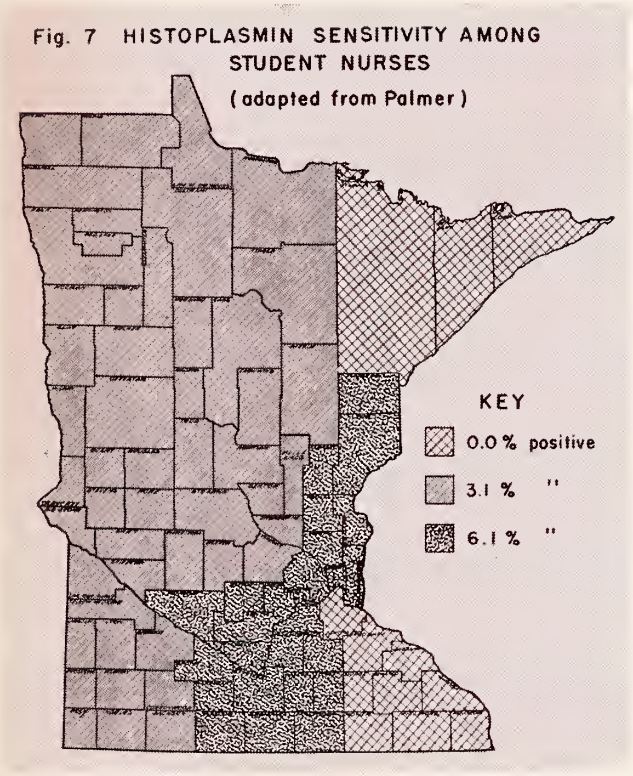
Fig. 6



counties if they had at least five years' residence within that county. On this basis 11,557 Minnesota residents were listed by counties. Figure 8 is a map of histoplasmin sensitivity according to this group of investigators. It should be noted that the rates in seven counties (including Red Lake and Mahnomen) are

the definition of life residency varies from the one used in this paper. Myer's population included many veterans. Doubtless these traveled about some during the tenure of their military service, and it is not unlikely that some of them could have acquired a histoplasmosis infection during a stay in an area of high en-

demicity. A catalogue of the differences and



similarities between Palmer's and Myer's work and the work presented here would show:

1. Both investigators agreed that the northeastern corner of the state was an area of low sensitivity.

2. Both picked up a strip of sensitivity along the St. Croix River, where the state health department has not tested.

3. Palmer missed the sensitivity in Wabasha County.

4. Both underrated the sensitivity in Wright County.

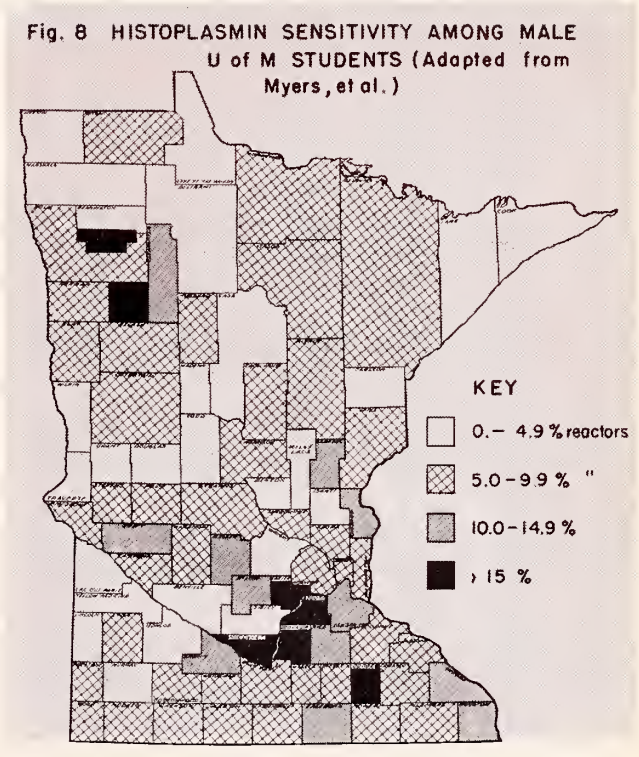
5. Both picked up the areas of relatively high sensitivity around Lake Minnetonka and along the Minnesota River.

6. Myers may have overrated Dodge, Mahnomen, and Red Lake Counties because of the small sample size referable to these counties.

Nevertheless, despite the differences noted above, the work of these other investigators emphasizes again the extremely spotty nature of histoplasmin sensitivity.

Summary

The discovery of areas within the state where histoplasmin sensitivity is relatively high has given the Minnesota Department of Health the opportunity to study the whole problem in depth in such an area. Such studies have been started in Mound, a village on the western end of Lake Minnetonka, where 400 individuals in 100 families have been skin-tested and have had complement fixation tests. In addition, each individual has filled out a questionnaire dealing with the usually accepted epidemiological "associates" of the disease. Under consideration are such items as the family picture with reference to histoplasmin sensitivity; the relative risk of being infected if the index case (a school child) is already a reactor; the differences between urban and rural dwellers; the significance of contact with household pets, domestic and wild animals; and the significance of the presence and utilization of chicken coops, silos, barns, attics, caves, and tunnels. Finally, the microclimatic conditions will be appraised. All of these data will be handled quantitatively as far as possible.



This somewhat elaborate study is not yet complete, but there are certain items of information that can be reported now with confidence. For example, there is an occasional

family in which every member is a histoplasmin reactor. The relative risk for any individual in a family (the index case being positive) is 1.77. Rural females appear to be more prone to be reactors than do their urban counterparts. The presence of pets within a household has no influence on the likelihood of finding histoplasmin reactors. The presence of chicken coops on the premises appears to be important in determining the presence or absence of reactors within the household. This is true whether the chicken coop is in current use or not.

Much of what has been said here is not particularly new in the field of histoplasmosis epidemiology. Rather, the information presented has been oriented to the problem as it exists in Minnesota and as it affects the practicing physician in the state.

By way of summary it can be said that there is no widespread generalized sensitivity to histoplasmin in Minnesota. Such sensitivity as there is occurs as an extremely localized geographical phenomenon and is of substantial magnitude, this term referring to rates of around 40 per cent. In some other areas of the country, of course, this figure would be considered only moderate. There may be other areas in the state where sensitivity is relatively high; these should be looked for. Because of these facts, it is probable that the disease is being underdiagnosed in Minnesota.

It has been pointed out that the areas of relatively high histoplasmin sensitivity that have been identified are in proximity to water, either a lake or a river. This suggests that the soil in these areas is in a saturated condition, thus fulfilling one of the growth requirements for Histoplasma capsulatum, namely, 100 per cent relative humidity. The water theory, however, has not received wide acceptance because of the fact that the sensitivity does not extend all the way up the river valleys (the Missouri-Mississippi in particular) or all the way down the Mississippi River.[22] For some reason, sensitivity terminates at points northward and southward. However, it is possible that at these north and south termini, the temperatures may not be optimum for sufficiently long periods to help generate and maintain a population of histoplasma. The study of microclimatic conditions may yield the necessary information.

From the practical standpoint, physicians practicing in the areas of high sensitivity can be alerted. They can be told, that in any case of respiratory or pulmonary infection not readily diagnosable, the diagnosis of histoplasmosis may be legitimately entertained. Further, the histoplasmin skin test can often be of service in the differential diagnosis of pulmonary calcifications.

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St. Vitus

Holy Helper, St. Vitus, who lived and is reputed to have been martyred during the Roman reign of Diocletian, was one of the hierarchy of early saints associated with health and healing, to whose shrines disease-afflicted persons made pilgrimages to petition for relief or cure.

Among the suers for the benefaction of St. Vitus were a group of Germans victimized by a hysterical mass-obsession to dance persistently and violently. Whether St. Vitus was touched by their predicament or not, history fails to disclose; their maniacal dancing, however, was called St. Vitus's dance.

Subsequently, because of the dubious similarity of their spasmodic jerking and jumping to the manifestations of chorea, the name St. Vitus's dance was adopted and perpetuated as the common, nonscientific term for that disease.

In this way St. Vitus became the special saint of epileptics and chorea victims.

St. Vitus dance (chorea) is a convulsive, nervous disorder which is especially common in girls from the age of ten to puberty. The first sign of weakness is spasmodic head and face twitching and clumsy, involuntary, incoordinated, purposeless movements of the extremities. The child may be unable to dress herself, drops objects, has a stumbling gait, speech difficulty, irregular breathing, tachycardia, urinary frequency, diminished tendon reflexes, and may have some personality changes.

In 50% of the patients rheumatic joint symptoms develop later. This condition should be treated early and similarly to rheumatic fever.

At best the span of life is short. Our entrances and our exits on the stage of passing time are controlled by a Destiny higher than we with our finite minds are permitted to understand. When the hour approaches for the Final Curtain, there is not time to look back or to try things over again or even to transmit to others the advice of the era which, having discovered its own mistakes, yearns in vain for another chance. — David Lawrence.

Youth is a blunder, manhood a struggle, old age a regret. — Benjamin Disraeli

Chlordiazepoxide in Alcohol Withdrawal — INTRAMUSCULAR EFFECTS*

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Double-blind studies evaluate new drugs most objectively. This apparently useful drug tested out no better than saline used as a placebo. The search goes on for an ideal drug to control alcohol withdrawal symptoms.

THE SEARCH continues for a satisfactory drug to assist in management of the patient undergoing alcohol withdrawal. The ideal agent must be effective, safe, and without serious side-effects. Chlordiazepoxide (Librium‡), fairly recently introduced, is considered by some authors to be the drug of choice in the treatment of alcoholism. However, since reports in the literature have been of relatively uncontrolled experiments, a double-blind study seemed indicated, comparing placebo therapy with injections of chlordiazepoxide.

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‡ Hoffman-La Roche, Inc., Nutley, New Jersey

Pharmacology

According to Randall,[1] chlordiazepoxide is a member of a new class of chemical compounds that exhibit the tranquilizing properties of chlorpromazine and reserpine in animals, but without autonomic blocking effects. As a muscle relaxant, the drug is rated as markedly more potent than meprobamate; its anticonvulsant properties have been reported as similar to those of phenobarbital; and it has demonstrated some appetite-stimulating qualities suggesting anabolic activities. These reports lead to the assumption that the drug might be excellent for treating alcoholism.

Review of Literature

Many authors feel that chlordiazepoxide is the treatment of choice in alcoholism. Lawrence and associates[2] report that chlordiazepoxide is remarkably effective in controlling withdrawal symptoms.

The initial oral dose produces a reduction of tremor, restlessness, and anxiety, followed by light sleep, improved sleep patterns, and a return of appetite in four to 12 hours. These authors also find that the dosage is critical, and that it differs greatly, some patients requiring only 10 mg. a day, others as much as 200 mg.

Ticktin and Schultz[3] used chlordiazepoxide for 42 patients, giving the drugs intravenously at first, then orally. They reported a rapid reduction in anxiety and tension, though no controls were used. They comment that chlordiazepoxide has no side-effects, thus avoiding the dangers and complications associated with phenothiazine therapy.

Interestingly, Cohen[4] combined a phenothiazine compound with chlordiazepoxide in the treatment of alcohol withdrawal. He gave 50 to 100 mg. of promazine intravenously or intramuscularly every four hours for three doses, then every six hours for three doses, following this medication by oral chlordiazepoxide, 10 to 20 mg. four times a day. Cohen feels that nicotinic acid also helps a great deal in the treatment of alcoholics, but recommends that such drugs as paraldehyde, chloral hydrate, and barbiturates not be used, since they are depressants, as is alcohol, and complicate the treatment.

Investigative Studies

The authors felt that if chlordiazepoxide was as dramatically effective as reported, a physician should be able to tell through clinical observation, more often than would be due to chance, whether a patient had received an injection of the active drug or of a placebo.

Choice of Patients

Details of our experimental group are given in Table 1. Although 15 patients entered the study, four were dropped because of mechanical errors on the part of the investigators. The remaining 11 patients had diagnoses of chronic alcoholism; three had typical attacks of delirium tremens during acute withdrawal. Although a patient's estimate of the number of years he was a chronic alcoholic is not reliable, 14.6 years was the average reported by our patients and is included to help characterize the group. The average age of the patients was 50.7 years; the youngest patient was 38 and the oldest 68.

Laboratory Studies

Laboratory work, including urinalyses and blood counts, demonstrated no toxic effects of chlordiazepoxide. Blood pressures taken before the study, during the change from one drug to the other, and after the study showed no significant change with either the active compound or the placebo.

Procedure

For purposes of this investigation, 100-mg. intramuscular doses of chlordiazepoxide* and

TABLE I — DATA ON PATIENT GROUP

CASE NO.	OCCUPATION	AGE	ESTIMATED YRS. OF ALCOHOLISM	TWENTY-FOUR HOUR PERIODS I	TWENTY-FOUR HOUR PERIODS II	NO. OF DAYS OF ACUTE SYMPTOMS	STAFF GUESSES** Correct	STAFF GUESSES** Incorrect
1.	Mechanic†	45	10	Drug	Placebo	5	2	2
				Placebo	Drug		2	3
2.	Bookkeeper	68	20	Drug	Placebo	5	2	0
3.	Laborer	62	10	Placebo	Drug	7	0	3
4.	Truck driver	38	15	Drug	Placebo	9	1	1
5.	Unemployed	47	20	Placebo	Drug	12	1	0
6.	Railroad worker	40	20	Placebo	Drug	7	3	0
7.	Unemployed	64	3	Drug	Placebo	3	0	1
8.	Salesman	60	10	Drug	Placebo	2	0	3
9.	Accountant	50	20	Placebo	Drug	5	1	0
10.	Unemployed	40	25	Drug	Placebo	4	0	1
11.	Semiskilled laborer	44	8	Drug	Placebo	4	0	1

*Provided by Hoffman-LaRoche Company

**As to whether drug or placebo was being used.
†Study repeated in Case 1.

matched placebos were used. The procedure was as follows:

1. The patient was admitted to the hospital after being diagnosed as suffering from acute alcohol withdrawal.

2. The patient was given a physical examination and his history was taken. He was then rated on a special form devised for the study (see Table 2). Symptoms were rated 1, 2, 3, or 4 in increasing order of severity. Totals for the various ratings provided somewhat more objective evaluation than clinical observation.

3. On a double-blind basis, determined by the flip of a coin, the patient was given either (1) 100 mg. of chlordiazepoxide every eight hours intramuscularly for three injections or (2) a placebo every eight hours intramuscularly for three injections. The placebo was identical in color and appearance to the active compound, and was prepared by a nurse on a separate ward. As a result, only one person knew which substance was in the syringe and she was not involved in any other part of the study.

4. The nurse in charge of the ward was permitted to give paraldehyde orally if she felt the patient was in need of this medication. This offered some reassurance to the clinical staff, since one drug was a placebo; it also allowed determination of whether or not patients required more or less paraldehyde when receiving chlordiazepoxide.

5. After the initial three injections, the patient was scored again in the rating scale, and the other compound was administered the next 24-hour period, followed by a final evaluation on the rating scale. The investigators did not know which compound was given on either occasion.

6. After both the first and the second 24-hour periods, the professional personnel most involved with the patient—nurses as well as investigating physician—were asked to guess whether or not the patient had been on drug or placebo, using any criteria they chose. At the end of the experiment, nurses and doctor also stated which 24-hour period they believed to be the more comfortable fo the patient.

TABLE 2—RATING CHART, USED BY PHYSICIAN AND NURSES

Symptoms	Severity of Symptoms*			
	1	2	3	4
Tremulousness				
Apprehension				
Demand for relief of symptoms				
Need for I.V. fluids (State of hydration)				
Hallucinations				
Need for restraints				

*In increasing order of seriousness

Results

In our experience with 11 patients suffering from alcohol withdrawal syndromes, only one showed any side-effects whatsoever. The patient had mild ataxia, probably due to the drug, since it was observed for about two hours after the injection of chlordiazepoxide.

Withdrawal Symptom

The acute withdrawal syndrome was usually over in four to seven days, the average being 5.7 days. One patient recovered in two days; however, in another patient, 12 days were required to control withdrawal symptoms. Patients remained in the hospital from four to 28 days, the average being 13 days. Nine patients received paraldehyde; however, dosage of paraldehyde was the same whether the patient received drug or placebo.

Evaluation by the Staff

Four patients seemed more comfortable during active drug therapy; five when they were receiving the placebo. It is perhaps significant that in eight of these estimates, the patients were described as more comfortable during the second 24-hour period. For two patients, the staff could not determine which period gave better results.

Thus, generally speaking, the staff was unable

to correctly guess whether the patient was receiving drug or placebo. Out of the possible 27 guesses 12 were correct and 15 incorrect.

Comments

Friedhoff and Zitrin[5] at one time compared 15 delirium-tremens patients treated by chlorpromazine with 16 treated by paraldehyde. In their observations, the chlorpromazine-treated patients recovered in an average of eight days, the paraldehyde-treated alcoholics in six days. In other words, both drugs proved useful in managing delirium tremens, and most patients recovered in about five to eight days, no matter which drug they received. Our study supports this concept of improvement in five days or so, provided the patient is given proper diet and rest, regardless of drug therapy.

Our data do not support the theory that intramuscular chlordiazepoxide has much influence on the alcohol withdrawal syndrome. One point, however, stands out clearly: the need for a controlled study in assessing the influences of the active ingredient in any drug. Previous to undertaking this study, we were enthusiastic about chlordiazepoxide. In two patients previously given the drug intramuscularly, we formed the impression that symptoms definitely improved; but the more objective method of the double-blind study contradicted this impression.

Of course the study was small. However, each patient received 300 mg. of chlordiazepoxide in 24 hours. Since a previous author[2] reported effectiveness of 10 mg. daily, we felt confident that further experimentation with dosage would not demonstrate improved findings. Perhaps the intravenous route reported by Ticktin and Schultz[3] should be tried out with adequate controls before parenteral routes can be finally evaluated.

Summary

Effect of chlordiazepoxide on chronic alcoholics suffering from withdrawal symptoms was studied by a double-blind method. For the first 24 hours, 100 mg. of chlordiazepoxide or placebo were given intramuscularly every eight hours for three injections; therapy was then alternated. Physicians and nursing staff were unable to determine with any better than chance accuracy which patients were getting placebos and which active drugs.

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FROM "REGIMEN SANITATIS SALERNITATUM"

If thou to health and vigor wouldst attain
Shun weighty cares — all anger deem profane
From heavy suppers and much wine abstain.

Use three physicians still — first Dr. Diet
Next Dr. Merryman, third Dr. Quiet.

Great suppers will the stomach's peace impair
Wouldst lightly rest — curtail thine evening fare.

Shun idle slumber nor delay
The urgent calls of nature to obey.

Nor trivial count it after pompous fare
To rise from table and to take the air.

But as all practice shows, no doctor can
Make life anew, though he may stretch its span.

Bettman, Otto: "A Pictorial History of Medicine"

Traumatic Osteochondritis Dissecans of the Knee **



Fig. 1. Elongated lesion, probable subchondral fracture.

WILLIAM G. ATMORE, M.D.*
Duluth, Minnesota

THE TERM osteochondritis dissecans was first used by Konig in 1888; however, the condition the term represents was described as early as 1726 by Monro, who removed a loose body from a knee joint and noted its relationship in size and shape to a defect in the articular surface of the femoral condyle.

Etiology

Monro felt that this condition was a result of external trauma, and the idea was generally accepted until 1870, when Paget suggested necrosis without acute inflammation as the cause of the separation of the loose fragment of articular cartilage and underlying subchondral bone. His theory was strengthened by Arhansen, who, in 1912, suggested a "bland embolism" as possibly occluding the arterial supply of the articular plate. Trauma plus vascular insufficiency are now generally accepted as the causative factors in osteochondritis dissecans.

This condition is of two distinct types: (1) juvenile osteochondritis dissecans occuring most often in the ten to fourteen-year age groups and (2) the adult type. The two groups have certain factors in common and also distinct differences; however, we are interested only in the adult group.

Indirect Trauma

The anterior superior spine of the tibia repeatedly striking the lateral side of the medial condyle of the femur is the classical method of so-called indirect trauma. Factors favoring this include (1) genu recurvatum or back knee deformity (the most common cause in women and attributed by some to the wearing of high heels);

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**Presented at the Minnesota Surgical Society meeting July, 1961.

(2) any internal derangement of the knee, including surgical removal of a meniscus; (3) osteoarthritis; (4) single direct trauma. Direct trauma is included; but it is to be kept in mind that actual subchondral fractures occur, which, at least for academic discussion, are not strictly speaking osteochondritis dissecans. A true fracture, seen at early arthrotomy, will have a hemorrhagic base; osteochondritis, a sclerotic one. A subchondral fracture which results in nonunion would, however, be indistinguishable from osteochondritis dissecans.

End Arteries

The arrangement of the knee joint lends itself to this condition by nature of its bony trabeculations which arise horizontally from a cortical cylinder at the distal end of the femur and sweep to the articular cartilage, curving to a perpendicular position. Thus it would appear that a repetitive traumatic force can gradually shear the spicules loose, producing a subchondral fracture which, because of the particular blood supply to the area (end arteries), will become a nonunion as a result of relative vascular insufficiency.

The Loose Body

The loose body once initiated, by direct or indirect trauma, can act in two ways: (1) the fragment may completely detach but remain in situ and eventually revascularize with healing, or (2) it may detach and become a loose body or "joint mouse." The loose body once free of the defect may remain free, be trapped by synovium, or even undergo dissolution.

Clinical Features

The usual location of the defect is the lateral aspect of the medial condyle of the femur. The lesion has been noted in both condyles, however, and even in the tibial weight-bearing surfaces. While usually rounded, several defects have been noted to have elongated irregular shapes. Irregular-shaped defects may represent true subchrondral fractures (Fig. 1).

Signs of Internal Derangement

The whole clinical course from production of separated fragment to loose body may be entirely asymptomatic. The usual situation, however, is for swelling, instability, locking, pain, and the usual signs of internal derangement to occur. It was the frequency of this condition in knees operated on for a cartilage lesion which led to a review of consecutive adult cases of arthrotomies of the knee.

In 100 arthrotomies of the knee, nine osteochondritic lesions were disclosed. No case where the diagnosis of osteochondritis dissecans was made preoperatively was included.

Two correlations were attempted: (1) what, if any, symptom or finding peculiar to osteochondritis dissecans was present in this group, and (2) what relationship between osteochondritis and other pathology in the knee existed.

Instability

As to a complaint peculiar to osteochondritis, eight of the nine osteochondritic lesions had instability as a symptom, whereas of all other pathology found on arthrotomy only fifteen of ninety-one cases produced this sensation. Realizing that this is a small series to draw on for conclusions, the author feels that instability or a sensation that the knee is giving way may well be correlated with the pathological anatomy of osteochondritis dissecans and may indeed represent a symptom indicating the presence of a weight-bearing cartilage defect. Thus, as the osteochondritic area becomes weight-bearing in the movement of the knee, it is understandable that a "giving way" or instability could occur.

Associated Torn Meniscus

As to other pathology present in association with osteochondritis, in four of the nine cases an associated torn cartilage was found. As no other pathology was noted, this would seem to indicate that a tear in the meniscus may indeed initiate osteochondritis dissecans.

X-ray Findings

The typical X-ray appearance of an area of increased density in the immediate subchondral area, bounded by a zone of decreased density, and later a rounded weight-bearing defect with or without loose body was, of course, not present in any of these cases; otherwise they would have

been accurately diagnosed preoperatively. Why the typical X-ray picture is not present in some cases is probably related to the position of the defect on the femur and whether or not it is "profiled" in the standard anteroposterior and lateral views. In long-standing cases, the defect may partially fill in.

A discussion of X-ray appearance suggesting osteochondritis dissecans but actually representing defects of ossification is not within the scope of this paper.

Treatment

All cases were treated by arthrotomy with curettement of the lesion to bleeding bone and beveling its edges, augmented at times by drilling of the base. A method of repair, when the fragment is still present in the defect, by fixation of the loose body with stainless steel nails, as described by Smillie, was not attempted. It is felt, however, that simple curettement is not the best method in view of the almost certain weight-bearing surface defect resulting. Some experimentation utilizing polyvinyl sponge as a lattice for repair has been done, but was not utilized in this group.

Summary

In a series of 100 consecutive arthrotomies of the knee bearing a diagnosis of cartilage injury, all patients were eighteen years of age or over. At operation nine cases were found to have, in addition to this diagnosis, or as the only pathology, an osteochondritis dissecans. The symptom of instability would seem to point to the presence of osteochondritis dissecans in the face of negative X ray. At arthrotomies of the knee, whether a torn meniscus is found or not, careful inspection of the condyles of the femur for an osteochondritis dissecans defect is important. No follow-up studies have, as yet, been attempted to determine the end result of treatment by curettage of this condition in adults. While it is felt that arthrotomy and curettage are indicated in adults, it is also probable that time will prove some method of repair of the defect, other than curettement and "nature," to be superior.

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Keep your eyes wide open before marriage, and half-shut afterwards. — Benjamin Franklin

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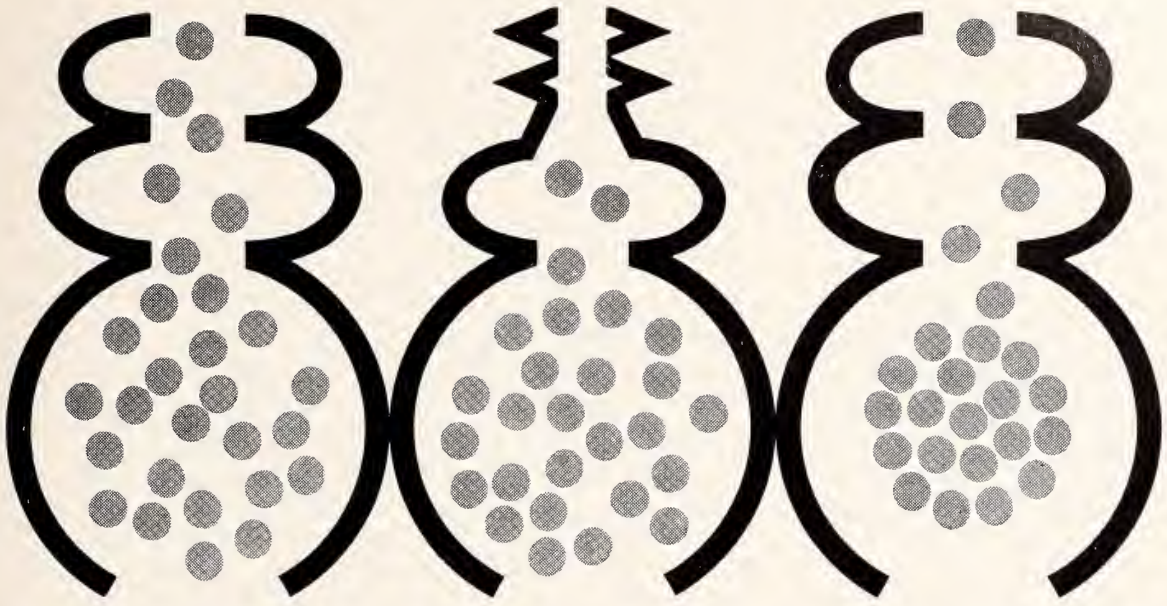
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Editorials

Histoplasmosis In Minnesota



HISTOPLASMOSIS as a disease has been recognized in this country for only 30-odd years. Thought at first to be an invariably fatal, disseminated disease, it is now recognized that the vast majority of infections with this fungus are quite innocent. The spectrum of disease caused by *Histoplasma capsulatum* is probably as wide as that caused by *Mycobacterium tuberculosis*. Clinically three main types of histoplasmosis are recognized: acute pulmonary infection, chronic cavitary pulmonary infection, and disseminated disease.

The acute pulmonary form goes unrecognized in most cases, varying from a flu-like syndrome to severe pneumonia. Most of the "inapparent infections" fall into this category, with X-ray manifestations varying from diffuse miliary lesions to pneumonia-like infiltrates. This form is one of the Pandora's box of diseases that produce the "pulmonary coin lesion"; it is almost invariably benign and may heal completely, leaving a positive skin test as its only residuum. Elsewhere in this issue Dr. Kleinman and his associates from the Minnesota Department of Health present the results of a widespread skin-test survey for histoplasmosis in this state. They find sharply localized geographic areas in which there is a high percentage of positive reactors; active disease in most of the cases had never been diagnosed. Chronic pulmonary histoplasmosis produces lesions resembling tuberculosis and is often confused with that disease.

The acute disseminated form, although the first recognized, is the rarest. Reported clinical series tend to over-emphasize its severity, probably because the bulk of mild cases go undiagnosed. Rubbin, Furcolow et al.[1] emphasize that even the mild acute cases are probably disseminated; only the severe cases with hepatosplenomegaly, lymphadenopathy, and mucous-membrane lesions are recognized as such. The mortality in this form is probably greater than 80%.

Diagnosis is difficult. Although the fungus grows well in many media, it rarely can be recovered from the sputum and not always from resected lesions, but can occasionally be cultured from scalene node biopsies. Immunologic tests are of great value; yeast phase, complement fixation and collodion agglutination tests are available; in the presence of active disease the former test is usually positive at 1:32 or greater dilution, and the latter at 1:5 or greater.[2] Skin tests producing a tuberculin-like reaction to a broth-culture filtrate are a good index of past disease; as Yue et al.[3] point out, however, serologic tests must be interpreted with caution after a skin test has been applied.

Infection occurs through inhalation of the fungus from contaminated soil; person-to-person spread apparently does not occur. Kleinman reports that four mild epidemics have occurred in Minnesota, and two larger epidemics in the Midwest were recently reported.[4,5] Most of these occurred in groups of people working in areas where the soil was heavily contaminated with bird-droppings, and the organisms can usually be readily cultured from this soil. Apparently moist earth favors fungus growth or concentration of birds; for, as is pointed out in the Minnesota survey, all the areas of high skin-sensitivity are near watercourses. It must be remembered that histoplasmosis is not a disease

Continued



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of birds, but that their droppings increase the growth of Histoplasma capsulatum in the soil.

Treatment of the disease follows the medical dictum "primum non nocere." Most of the acute pulmonary cases heal well with no treatment or with bed rest alone. Therapy with Amphotercin B has been successful and has improved the prognosis in disseminated disease; Furcolow recently reported that mortality was reduced from 83% to 23% by this treatment. [6] The drug is highly toxic and in all but severe cases may be worse than the disease itself. A satisfactory treatment for less severe cases has yet to be found.

Recognition of high histoplasmin skin-sensitivity in many localized areas of Minnesota should increase awareness of this disease. Serologic testing of patients with unexplained pulmonary disease, especially in local endemic areas, may result in an increased diagnosis of histoplasmosis in Minnesota.

Richard C. Woellner, M. D.
St. Louis Park 16, Minnesota

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Anesthesia: An Evaluation

A RECENT American Hospital Association study showed that approximately 20 million citizens are hospitalized yearly. Of this number, those patients who are admitted to surgery require the awareness and cooperation of all staffs, surgical, medical, and nursing. Staff conferences pertaining to preoperative digitalization, electrocardiographic interpretation, steroid administration and pulmonary evaluation are important. In particular, certain special situations which face the anesthesiologist and to which he can make a unique contribution, are considered here.

People Get Sick While in the Hospital

An already-hospitalized patient may develop an acute surgical condition for a number of reasons, such as: the disease for which he was originally admitted, postoperative complications, trauma acquired during convalescence, correcting an error in diagnosis, or failure to improve under conservative management. In addition, he presents a special risk because his physical condition is usually far from ideal for surgery.

Surgical emergencies occurring within the hospital should not be unexpected. Signs and symptoms that obviously derive from an acute surgical condition need not be overlooked or ignored because the patient is hospitalized for another reason, nor should a new syndrome be mistaken for the original ailment. The sedatives prescribed should not mask new pain and thereby delay proper diagnosis. It is also of paramount importance to stop oral feeding of any hospitalized patient who might be considered a candidate for emergency surgery.

Drop in the Blood Pressure

Interpretation of Blood Pressure Fall

Generally, it is the anesthesiologist's duty to maintain the patient's condition at a safe level and to correct common fluctuations in blood pressure. The anesthesiologist must avoid disturbing the surgeon over every small blood pressure fall; at the same time, he must not allow the patient's condition to deteriorate severely without notifying the surgeon.

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Blood pressure fall can be due to too much anesthesia, to surgical manipulations, to blood loss, to posture (the prone position is particularly bad), or, and this occurs more commonly than is generally believed, to the sum of a little of each of these. When the pressure falls, it must be decided quickly whether the shock is due to surgery or anesthesia.

Primary Shock and Treatment

If anesthesia is the cause of primary shock, the pulse rate will usually be slow and the respiration shallow. The treatment of this condition requires the anesthesiologist to stop the offending drug, change the patient's position, and administer a vasoconstricting agent.

Secondary Shock and Treatment

In secondary shock, if it is due to surgery, the pulse rate will usually be increased, and there will often be external evidence of blood loss in the sponges, suction bottles and operation field. For hemorrhagic hypotension, blood or a plasma-extender is given.

However, when replacement for lost blood is either not available or ineffective, the administration of vasopressor drugs may help to shorten the period of hypotension. And, if severe shock appears early in the operation and the response to vasopressor therapy is inadequate, the administration of blood is strongly indicated.

Preanesthetic Medication

Sedative Value

A narcotic and a belladonna-type drug are usually given together as preanesthetic medication. The narcotic is administered to remove apprehension, to induce a state of euphoria, and to relieve pain in the acutely ill.

Parasympathetic Value

The second drug (a parasympathetic depressant) is given to dry secretions, to stimulate respirations depressed by the narcotic, and to protect the heart. The first agent may be morphine, meperidine, dihydromorphine (dilaudid) or newer preparations. The second drug is usually atropine or scopolamine. Pain, sensitivity, somnolence, and advanced age should be considered when ordering the narcotic; when atropine is prescribed, blood pressure and pulse rate, age and weight are evaluated.

Influence of Age

It is logical to individualize administration of the two drugs and to prescribe them according to the patient's requirements instead of by an arbitrary ratio. Narcotics are to be avoided in the very old as well as in the extremely young. Atropine is contraindicated in the presence of hypertension or tachycardia.

Adenotonsillectomy Without Intubation

While it seems theoretically sound to intubate for tonsillectomy, the statistical approach suggests that insufflation may be a better method of anesthesia. During the past eight years, approximately 4,000 adenotonsillectomies were performed at Lincoln General Hospital on patients anesthetized without endotracheal intubation. In each case, the Rose position was used, the head being hyperextended, and a Crowe-Davis gag used to provide ether vapor insufflation and an adequate airway. Not only was it possible to maintain anesthesia in all cases, but the total anesthesia time was shortened, and the absence of the endotracheal tube provided better operating conditions for the surgeon. In addition, the patient was spared the various traumas incident to intubation, including injuries to teeth and larynx, and a small but real danger to life. There were neither deaths nor untoward incidents in the entire series.

Keeping the Elderly Patient Alive

An elderly patient who has been carefully carried through anesthesia and surgery and who has returned to bed awake and normotensive, should remain so, if certain practices are followed.

Since every sedative "hypo" will produce a fall in blood pressure, sedation should be avoided during the immediate postoperative period. If required however, it should be given in small amounts and the resulting blood-pressure fall anticipated. The intravenous infusion should be



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continued during the immediate postoperative period, and any blood which has been lost should be replaced. The routine use of antiemetic drugs should be avoided.

In all of the above instances, the implementation of the anesthesiologist's opinion in the evaluation of the patient's condition, the risk of submitting him to surgery, choice of anesthetic, and postoperation management, can contribute greatly to the well-being and smooth recovery of the patient.

Frank Cole, M.D.*
Lincoln, Nebraska

*Chairman, Department of Anesthesiology, Lincoln General Hospital, and Clinical Associate in Surgery, University of Nebraska College of Medicine.

President Kennedy's 1963 Medicare Bill

The new proposal would add another 2,500,000 to the Medicare rolls, persons who have never contributed to the Social Security fund and many of whom do not need any help with their medical bills. The Administration estimates that the program would cost $5.2 billion in its first five years of operation.

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Take a look at the performance record of private enterprise in health insurance: In 1951, about 85 million Americans had some form of private health insurance. A decade later, in 1961, that number had risen by 60 per cent to 135 million. Today, more than 125 million people have *both* hospital and surgical insurance. Over the past decade, health insurance coverage for the aged has grown from 3 million to more than 9 million people, a rise of 200 percent. Does this sound as if private enterprise is falling down on the job?

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Leprosy in the Bible

The Diagnosis, Epidemiology, Treatment and Prognosis

Leprosy is so prevalent in the Bible that one subconsciously considers it an Old-Testament disease. Innumerable individuals were afflicted and stigmatized as "unclean."

Diagnosis

Leviticus 13:1-44 deals explicity with "the laws and tokens whereby the priest is to be guided in discerning leprosy," judicious discrimination being required on his part to decide whether certain skin spots denote leprosy or are just natural and harmless phenomena, such as freckles. The priest must examine all spots, scalls, and risings to determine their nature: whether they are only superficial or extend beneath the skin; whether they tend to spread; whether they are raw or scabbed; whether they are white, reddish, white-reddish, or greenish; whether the hairs they contain are white, yellow, or black.

Epidemiology

If leprosy is suspected, the unfortunate individual must retire far off and alone for seven days, to be then re-examined by the priest, pronounced "clean" or "unclean," and either released or again sent into isolation for another seven days — an apparently ad-infinitum procedure.

If and when leprosy is definitely established, "the leper in whom the plague is, his clothes shall be rent, and his head bare, and he shall put a covering upon his upper lip, and shall cry, Unclean, Unclean. All the days wherein the plague shall be in him he shall be defiled; he is unclean: he shall dwell alone; without the camp shall his habitation be."[1]

Verses 47 to 59 of Leviticus 13 are concerned in meticulous detail with the clothing of diagnosed lepers: how to examine the garments to decide whether they must be burned up or whether mere washing will suffice.

Treatment

Leviticus 14, which deals with cleansing the leper and his house, is appalling! It involves incredible rituals of animal sacrifice: the "sin offering" and the "burnt offering" of two birds, one of which must "be killed in an earthen vessel over running water," two lambs, and two turtledoves. During the preposterous ceremony "the priest shall take some of the blood of the trespass offering, and the priest shall put it upon the tip of the right ear of him that is to be cleansed, and upon the thumb of his right hand, and upon the great toe of his right foot."[2]

This touching of vital areas with blood is alternated by dabbing the same areas with oil, followed by other stipulated gestures of atonement.

To cleanse the house of the leper similar rites are practiced, the blood and the oil being sprinkled throughout the dwelling, which is further de-plagued by cleansing, scraping, partially destroying, or even, in stubborn cases, demolishing completely. The job must be thorough!

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1. Ford, R. A., and Blanchard, K. P.: J.-Lancet 78:185, 1958.

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Prognosis

Among the numerous victims of Old-Testament leprosy were Miriam, Naaman, and Uzziah. Miriam, who dared to criticise Moses for marrying an Ethiopian, was smitten by the Lord, who came down in a pillar of cloud to rebuke her. "And the cloud departed from off the tabernacle; and, behold, Miriam became leprous, white as snow: and Aaron looked upon Miriam, and, behold, she was leprous."[3] At Moses' impassioned intercession, however, she was healed, but only after spending seven days in quarantine away from the camp of her people.

Freedom of speech was then no constitutional right; for rashly speaking one's mind retribution could be sure, swift, humiliating, and terrible.

Kings II, 5 relates how Naaman of Syria, a leper, came to Israel to seek a cure and was told by Elisha to bathe in the river Jordan. With some spirit Naaman at first protested, asking why the rivers of Damascus would not do as well, but was prevailed upon by his servants to do as Elisha bid. "Then went he down, and dipped himself seven times in Jordan, according to the saying of the man of God: and his flesh came again like unto the flesh of a little child, and he was clean."[4]

Not so fortunate as Miriam and Naaman, both of whom were cured, was King Uzziah of Judah, who had built up a great and powerful kingdom and had himself become so mighty that he dared to enter the temple to burn incense to the Lord. When reminded by the priests that he was trespassing in the sanctuary and that burning incense was *their* prerogative, he became angry; "and while he was wroth with the priests the leprosy even rose up in his forehead before the priests in the house of the Lord. And Uzziah the king was a leper unto the day of his death."[5]

Ruthless and inexorable retribution for a trivial display of pride and presumption!

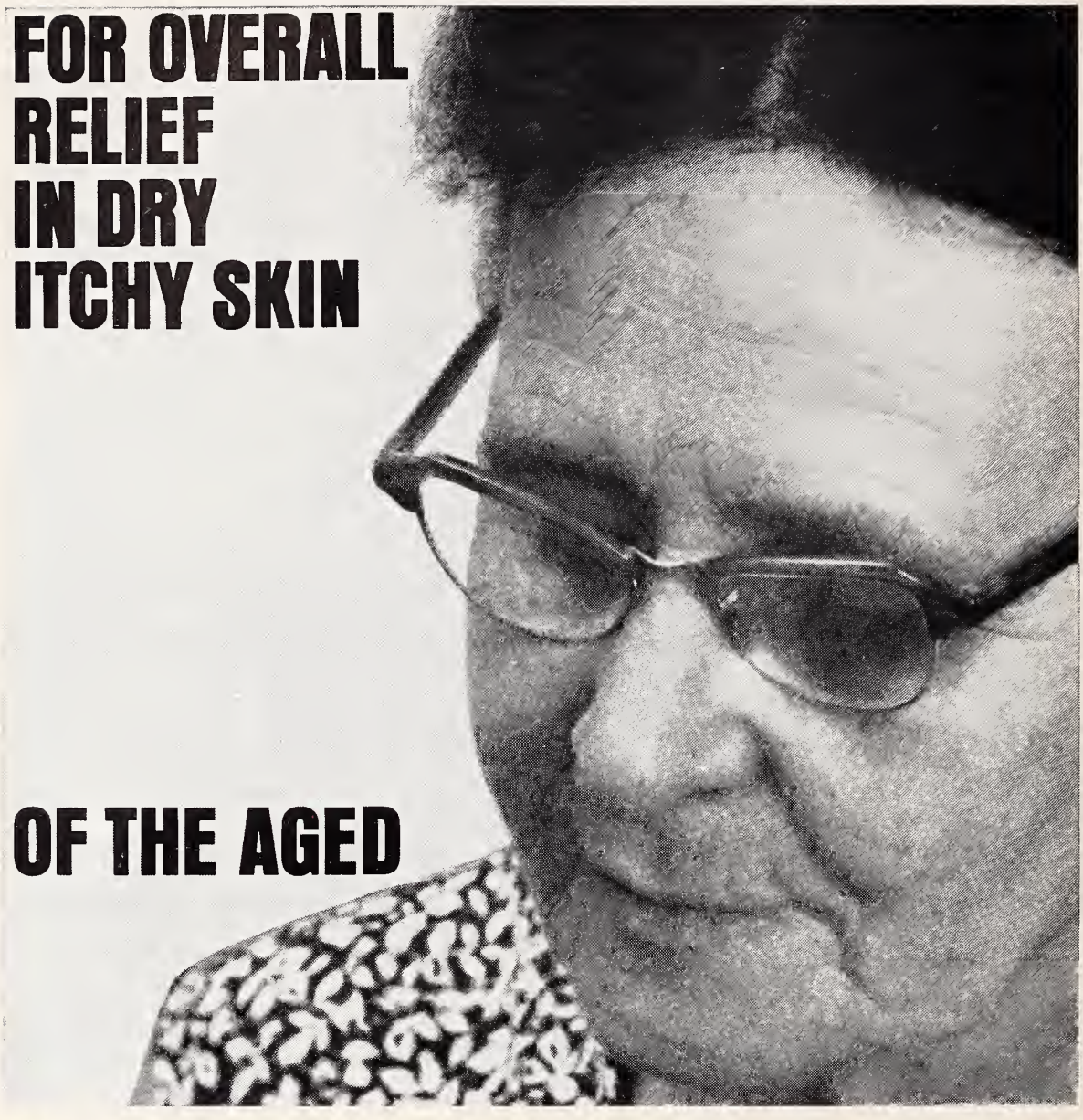
Happily in the New Testament we read of few, if any, individuals afflicted with disease as punishment by the Lord, when his "righteous" anger was aroused by some human frailty or misdemeanor. Instead, we read of many cases of instant healing through the compassion and at the hands of Christ. Matthew, Mark, and Luke all relate the now classic story of the healing of a leper. "And it came to pass, when he was in a certain city, behold a man full of leprosy: who seeing Jesus fell on his face, and besought him, saying, Lord, if thou wilt, thou canst make me clean. And he put forth his hand, and touched him, saying, I will: be thou clean. And immediately the leprosy departed from him."[6]

Modern medicine has outgrown its "dark ages;" no longer does it resort to bloody animal sacrifice and other absurd and unholy rites. Neither can it perform miraculous cures by the mere laying on of hands plus faith. The "miracles" of modern medicine are scientific.

1. Leviticus 13:45, 46
2. Ibid. 14:14
3. Numbers 12:10
4. Kings II, 5:14
5. Chronicles II, 26:19, 21
6. Luke 5:12, 13

Many of us spend half our time wishing for things we could have if we didn't spend half our time wishing. — Pelham Wodehouse

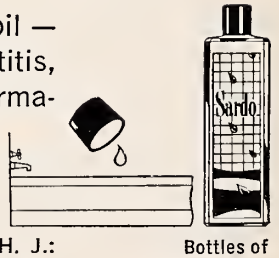
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1. Borota, A., and Grinell, R. N.: J. Amer. Geriatrics Soc., 10:413, 1962. 2. Spoor, H. J.: N. Y. State J. M., 58: 3292, 1958. 3. Lubowe, I. I.: Western Med., 1:45, 1960. 4. Weissberg, G.: Clin. Med., 7:1161, 1960. 5. Lieberman, W.: Amer. J. Proctology, 12:374, 1961. 6. Dick, L. A.: Skin, 1:341, 1962.

*Pat. Pend. T.M. © 1963 by Sardeau, Inc.

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Abstracts and Briefs

PRIMARY HYPERPARATHYROIDISM

The authors relate the experience of the Lahey Clinic in the management of hyperparathyroidism by a consideration of two series of patients. The first series covering a period from 1933 to 1951 is composed of 25 patients. Series II, comprising 32 patients, covers the period 1951 to 1961. In Series I there was a preponderance of females to males in the ratio of 19 to 6. In Series II the cases were almost equally divided between the sexes.

Screening of patients can be divided into five groups. The first group is that in which there is bone disease such as osteitis fibrosa cystica, osteoporosis, and osteoclastomas. Thirty of the 57 patients had evidence of bone disease.

The second group of patients are those giving a history of renal calculi. Thirty-two of the 57 cases studied had renal calculi.

A third group consists of patients with gastrointestinal symptoms. These patients include those with duodenal ulcer, those with ulcer-like symptoms in whom no crater can be demonstrated, those with recurrent or persistently unexplained severe abdominal pain, and those with apparently functional gastrointestinal symptoms not responding to therapy. There were 11 proven cases of duodenal ulcer in the series of 57 patients. Important clues that should arouse suspicion are those with ulcer-like symptoms accentuated by treatment with milk and alkali. Occasionally pancreatic lithiasis and hyperparathyroidism are associated. Among patients with gastrointestinal complaints, serious attention must be given to those classified as examples of "acute hyperparathyroidism" or "hypercalcemic crisis." If such a patient does not respond to hydration, emergency surgery must be performed despite the poor operative risk.

A fourth group consists of patients with adenomas of multiple endocrine glands. Possible association of adenomatous disease of the thyroid and parathyroid glands should not be overlooked.

The fifth group is a heterogenous one in which the clinical picture includes symptoms of a functional, neurasthenic, psychoneurotic, and even psychotic nature.

Various laboratory procedures can be utilized to verify the clinical impression of hyperparathyroidism. The finding of an elevated serum calcium and depressed serum phosphorus remains the most valid basis for the diagnosis of hyperparathyroidism. A consistent finding in a patient on a low calcium intake is an elevated urinary calcium excretion, but this may occur in other conditions associated with renal disease. A calcium tolerance test should not be attempted if the serum calcium level exceeds 14.0 milligrams per cent. A phosphate deprivation test may demonstrate an elevated calcium and a depressed phosphorus when these findings may otherwise be obscured by a high phosphate diet. A tubular reabsorption of phosphorus test may be performed. Its chief value may be limited to early hyperparathyroidism with normal serum calcium values. Normal values are 85 percent or more, while in hyperparathyroidism the reabsorption is decreased. This test done before and after the administration of parathyroid hormone can be helpful in differentiating primary and secondary hyperparathyroidism. When the calcium level is sufficiently normal in patients suspected of hyperparathyroidism a study of the ionized plasma calcium may be important. Values higher than 6.5 milligrams per cent, in the absence of hypercalcemia, suggest the disease.

Attention is called to the importance of a specially preconceived plan of surgical attack in those patients to undergo surgery for hyperparathyroidism.

In the post-operative management of parathyroidectomy patients, three specific problems must be considered. If tetany develops, treatment generally consists of calcium lactate and vitamin D or A. T. 10. Hypomagnesemia with bizarre neurologic symptoms, including mental confusion, may occur. Such changes respond dramatically to intramuscular injections of magnesium sulfate. Acute pancreatitis is a rare but serious complication.

The authors provide, in this article, some valuable hints as to surgical technique, worth review by any surgeon who may be faced with the management of one of these patients.

H. D. Kletschka, M. D.
Syracuse, N. Y.

Adams, H. D. and Murphy, R. "The Management of Primary Hyperparathyroidism" SG&O, 116:45 Jan. 63.

Continued

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RADICAL MASTECTOMY IN THE AGED

The authors introduce their article on breast cancer in the aged, with the statement that "methods of treatment ordinarily recognized as less than ideal are often recommended. Such decisions are based on concepts that the neoplasm is less malignant in the aged, that these patients will not tolerate the usual forms of therapy, and that survival in the aged is minimally influenced by the cancer. These tenets have not been adequately established, and consequently should be tested prior to continued acceptance."

A review of the records of 75 women with mammary carcinoma beyond the age of 75 years was made. Twenty-five aged patients with inoperable (stages III and IV) cancer of the breast lived an average of 22.6 months subsequent to diagnosis. In another study a comparable group of inoperable carcinoma patients of unselected ages was 20 months. The authors data indicates that mammary carcinoma is not less malignant in the aged.

The general statement is made that a radical mastectomy may have an anticipated mortality of 2 percent or less. This age group had a 4.5 percent mortality for the operation, and they conclude that the error has most often been excessive conservatism, for the geriatric patient will tolerate mastectomy well.

Actuarial figures on mean life expectancy for women between ages of 76 and 77 is 8.24 years. In this study mean survival time following diagnosis was 3.9 years plus, therefore the presence of mammary cancer does shorten life — even over 75 yrs.

Within this group 63 percent of the 75 women were considered operable at the time of initial clinic visit. This approximates the 59 percent operability rate for the general age category of the Michigan series reported by other authors. The incidence of positive axillary nodes in the operable group was 66 percent for aged patients and 55 percent for the general group.

The actual cause of death was established as 57 percent due to the mammary carcinoma, and in the operable group alone 45 percent of deaths were due to cancer. The survival time of the aged patient, therefore, is significantly shortened by the presence of mammary carcinoma.

In making a comparison between adequate operations, including standard Halsted radical mastectomy, to those with inadequate treatment involving lesser procedures, it was found that adequate therapy gives the elderly patient approximately twice the length of survival time as does inadequate therapy, and the presence or absence of positive axillary nodes does not alter the conclusion. The authors therefore state that the response to therapy of the aged patient with mammary carcinoma is comparable to that of younger patients.

If there remains any doubt that the elderly patient should benefit from the best of our knowledge in management, the original article should be carefully studied and conscientiously considered by any physician maintaining such doubts.

J. H. Strickler, M. D.
Minneapolis, Minnesota

Kraft, R. O. and Block, G. E.; Ann Surg; 156:981, 1962

CORONARY ARTERIES VISUALIZED

The authors' method opacifies the aortic root and coronary arteries during induced cardiac arrest. A large polyethylene catheter is passed retrograde through a femoral arteriotomy and positioned at the aortic valve. A calculated amount of acetycholine is injected through the catheter, during the induced ventricular arrest, is followed by contrast material delivered by a pressure injector. A catheter pacemaker electrode intravenously placed in the right ventricle enables the authors to control the heart rate artifically following the cardiac arrest. This control maintains the blood pressure and prevents abnormal rhythms until the effect of acetylcholine has disappeared and spontaneous sinus rhythm resumed. General anesthesia is required.

Double contrast coronary arteriography is performed in a similar manner with the exception that a small amount of contrast media is "blown in" by a specific amount of carbon dioxide during arrest. The carbon dioxide is absorbed rapidly from the blood and produces no neurological effect.

The methods were first extensively studied by dog experiments prior to use in clinical cases. In the authors' opinion better coronary angiograms are obtained by this method.

Drawings, electrocardiograms, and roentgen reproductions complete the article.

This article indicates the continued search for methods to correctly diagnose the lesion of coronary artery disease. Such objective diagnostic means are needed to adequately evaluate the medical and surgical treatment of this disease.

The double contrast method is unique in its approach and may be far more valuable in cardiovascular lesions other than coronary artery changes. The advantage of this technique for coronary angiography over others under local anesthesia is not conclusive.

Jerome T. Grismer, M. D.
Minneapolis, Minn.

Bilgutay, A. M. and Lillehei, C. W. - "Single and Double Contrast Coronary Arteriography Utilizing Acetylcholine Asystole with Controlled Return of Heart Rate Using a Cardiac Pacemaker." — J Thor and Cardio Surg, 44:617, 1962.

RECURRENT MITRAL STENOSIS

While many difficulties have been overcome in mitral valvotomy, some remain to be solved, and restenosis is perhaps the most important. This report is concerned with observations in the course of 32 repeated valvotomies for recurrent stenosis, in a series of 270 patients in whom valvotomy was performed. In more than half of the 32 patients deterioration occurred within the first 2 years after operation. In several cases this deterioration was not sufficient to warrant operation for a further 2 years. In all cases the valve orifice at the second operation was smaller than at the conclusion of the first, and in 11 the valve size was smaller than before splitting at the first. The primary commissurotomy was regarded as inadequate in 27 cases. It is suggested that after mitral valvotomy some degree of re-fusion develops in all patients; recurrence of symptoms is most likely in those that had an inadequate valvotomy.

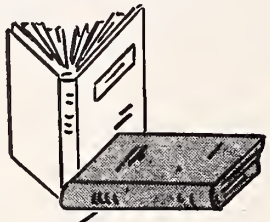
Courtesy of References and Reviews
Journal of the American Medical Association

Fraser, K. and Kerr, I. F.
Brit Med J 2:443 Aug 18 1962

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By Alexander S. Nadas, M.D., F.A.C.P., Assistant Clinical Professor of Pediatrics, Harvard Medical School; Cardiologist, The Children's Hospital; Physician, Sharon Cardiovascular Unit, Children's Medical Center, Boston. About 768 pages, 6⅜″ x 9¾″, with about 529 figures. About $16.00. *New (2nd) Edition—Ready May!*

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By H. Corwin Hinshaw, M.D., Ph.D., D.Sc., Clinical Professor of Medicine; and L. Henry Garland, M.B., B.Ch., MD., Clinical Professor of Radiology, University of California School of Medicine, San Francisco. About 800 pages, 7″ x 10″, with about 650 illustrations on 312 figures. About $20.00. *New (2nd) Edition—Ready May!*

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Major attention is paid to diseases or abnormalities that appear with a frequency of better than one in 1,000 births. The Appendix lists practically all traits that may be transmitted to children. Dr. Reed gives a reference for each one—usually the most recent authoritative article known to him. You'll find listings of such traits as: *adrenal hyperplasia—Dandy-Walker syndrome—pancreatitis—retinal aplasia—Wilms' tumor—etc.*

Recent advances in the area of medical genetics have required a complete rewriting for this revision. New chapters cover *Caucers, The Chromosome Breakthrough,* and the *Environment.* The wealth of counseling experience available to the author has grown to over 2500 "cases," all handled at the Dight Institute for Human Genetics.

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SJG 4-63

CANCER OF THE LARYNX

The 5-year results on 180 cases of total laryngectomy are reported along with the 4-year results on 221 additional cases. In all the cases of extraglottic cancer, laryngectomy was followed by prophylactic radiotherapy on the neck lymph nodes. No "prophylactic" but only therapeutical neck dissections were performed whenever cervical metastases were present. The 5-year cure rate was 71.7% and the 4-year cure rate was 73.5%. These results are quite comparable, if not superior, to those obtained with laryngectomy combined with prophylactic neck dissection. It is maintained that for the cancer of the larynx the 4-year cure rate is practically as valid and as indicative as the conventional 5-year cure rate.

Courtesy of References and Reviews
Journal of the American Medical Association

Simonetta, B. and Giaccai, F.
Arch Otolaryng 76:451 Nov. 1962

NASAL FOREIGN BODIES

It is rarely possible to grasp a foreign body in a child's nose with forceps because the mucus-coated object tends to slip and move further back. The nasal mucosa is likely to be injured, causing profuse bleeding. A hook or angulated instrument may push the object further in and is also liable to injure the mucosa. Pushing the object into the nasopharynx carries the risk of aspiration into the trachea. If the foreign body is swallowed, the doctor cannot establish that it has been removed.

Guiang uses a probe. Wrapped in a blanket, the child is placed on a table with one person holding the body and arms and another holding the head firmly against a pillow with the face turned toward the doctor.

The probe is held by the middle between the right forefinger and thumb, so that it rests on the tip of the right middle finger. The doctor introduces about an inch of the rounded tip of the probe into the child's nostril just above and parallel to its floor. He then sweeps the distal end of the instrument upward and forward behind the object until it comes out. Pressing the left forefinger over the cartilaginous part of the external nose facilitates the final ejection of the slimy object.

Advantages of this method are that a straight probe with a rounded end is easy to insert with least risk of injury or pushing the object further in; if the child moves suddenly, the probe can easily be withdrawn without injuring the nasal mucosa, and the doctor needs only one instrument.

There is no need for a special light or for anesthetizing the nasal mucosa. In one case a foreign body was removed from a child's nose in a dark room with only one person holding the child's body and arms, while the doctor held the child's head with his left hand.

Courtesy of World-Wide Abstracts
Excerpta Medica Foundation

Guiang, R. J Philipp Med Assn 38/6:424-25

ACUTE EPIGLOTTITIS

Eight cases of epiglottitis, 4 in adults and 4 in children, are described stressing that this disease is very treacherous and is associated with a high mortality rate. However, it reponds very well to treatment if diagnosed and treated early. A tracheotomy should be done as soon as the diagnosis is made. Visualization of the hypopharynx, a relatively silent area, should be a routine part of every physical examination.

Courtesy of References and Reviews
Journal of the American Medical Association

Matteson, A. R.
Arch Otolaryng 76:465 Nov. 1962

TRACHEOTOMY IN INFANTS

Difficulties encountered in tracheotomy in infants are discussed. General anesthesia is advised where possible. Undesirability of hyperextension of the head is stressed during operation. Fascial planes should not be opened up. The isthmus of the thyroid gland should be divided to prevent obstruction, if the tube should slip out. The tube should be part of an arc of a circle for easy introduction and removal. Mucolytic aerosols may be of use to remove secretions. On removal of the tube the difficulty due to collapse of the anterior wall of the trachea is dealt with by a suture through the upper edge of the trachea and the skin, enclosing all the layers of issue between.

Courtesy of References and Reviews
Journal of the American Medical Association

Fennell, G., J Lancet 2:808 Oct 20 1962

COMPLICATIONS OF TRACHEOSTOMY

This is a short, well written and well illustrated article, re-emphasizing the fact that the operation of tracheostomy is not a harmless procedure without dangerous complications and sequelae. In the author's series, eleven of the complications developed in the sixty-one patients on whom surgery was performed in the operating room, whereas, eight of the nineteen patients, on whom tracheostomy was performed outside of the operating room, developed complications.

The complications listed were:

- Hemorrhage at the operative site.
- Recurrent respiratory obstruction.
- Ulcerative tracheobronchitis.
- Pneumothorax.
- Tracheoesophageal fistula.
  - a.) As the result of surgery.
  - b.) As the result of pressure of the tracheostomy tube.
- Aerophagia with gastrointestinal dilatation.
- Apnea and shock.

The discussion of technique is good and their suggestion of using a number twelve blade in opening the trachea is excellent.

It is the reviewer's opinion that the authors have clearly pointed out the pitfalls of tracheostomy, and have made many excellent suggestions as to the avoidance of these.

Robert J. Richardson, M.D.
Minneapolis, Minn.

Glas, W.W., King, O. J., Lui, A. "Complications of Tracheostomy" Arch Surg 85:1 July 62

Continued



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The number of different techniques applied in the surgical treatment of procidentia of the rectum is an indication that none of them are wholly satisfactory. The Thiersch operation, however, with some modifications, has given good results either when used alone or when combined with other techniques.

Originally a wire loop was used, but this caused well known disorders and discomforts. Linen and silk loops were tried, but without success. Plastic sutures were used, with overlapped ends and joined with linen ties.

A year ago, with the aid of a plastic technician, a scheme was devised for welding the ends of polyethylene loops in situ, and this has been highly satisfactory. A double loop of this semiflexible plastic material is inserted around the external sphincter ani, and its two pairs of ends are held together with forceps and fused by means of an electric cautery. A jet of cold saline hastens solidification. There is no need to remove the loops later, because the polyethylene softens with body heat and adapts itself perfectly to the movements of the sphincter muscles and the anal canal.

So far only 11 cases have been operated on with this method, but the results justify its wider use.

Courtesy of World-Wide Abstracts
Excerpta Medica Foundation

Schwartz, A., and Marin, R. Dis Colon Rectum 5-4: 302-05

VOLVULUS OF THE SIGMOID

As the population ages, sigmoid volvulus becomes more frequent. Left colon resection adequately controls the condition, but when resection is dangerous there is controversy about the therapy of acute sigmoidal volvulus. Some prefer laparotomy with untwisting, but in the authors' experience proctoscopy with colon tube insertion has proved successful in every instance, avoiding the untwisting laparotomy. Subsequent resection is performed when chronicity is established. Acute volvulus is probably frequently untwisted by ordinary enema. The clinical entities therefore are difficult to record. Eighteen episodes in 14 undoubted cases are reviewed. Diagnoses, x-ray finding, and therapy are discussed.

Courtesy of References and Reviews
Journal of the American Medical Association

Prather, J. R., Bowers, R. F.
Arch Surg 85:869 Dec 1962

5-FLUOROURACIL

Rectal and colostomy biopsy performed during and after administration of 5-fluorouracil showed marked changes taking place in the bowel mucosa. Large nuclei with irregular margin, atypism, cessation of mucus secretion, and foamy degeneration of the cytoplasm preceded complete desquamation of the surface epithelium. By the 18th day, the mucosa was normal. Changes occurred in 14 of 20 patients treated. The authors suggest that the absence of any change in the rectal mucosa was almost always associated with complete failure of tumor response, even though the response of the normal mucosa to therapy did not serve as an index of the degree of tumor response to such therapy.

Courtesy of References and Reviews
Journal of American Medical Association

Milles, S., Muggia, A., and Spiro, H. M., Gastroenterology 43:391 Oct. 1962.

HERNIA AND BOWEL PERFORATION

The authors call attention to a complication of inguinal hernia which is not commonly recognized. The presence of an inguinal hernia may be a contributing factor to acute perforation of the small bowel as a result of blunt trauma. Nine such cases are reported from the Beekman - Downtown Hospital in New York, all seen during the 1950-1962 period. The American literature is sparce relating to this subject.

An alertness to this possibility must exist or the examining physician may detrimentally delay needed surgical intervention. The various possible mechanisms of etiology are reviewed.

The symptoms resulting from acute perforation after blunt trauma may be insidious, but more commonly are those of spreading peritonitis, i. e., pain, tenderness, spasm, and rebound. The hernia itself is usually reduced and non-tender.

The authors feel that any case revealing peritoneal irritation in a patient with an inguinal hernia who has possibly experienced trauma represents a valid indication for surgical exploration. They feel that the exploration should be by abdominal rather than inguinal approach. They also feel that this possibility is another reason for elective repair of hernias where no contraindication exists.

The clinician can probably profitably remember two lessons from this article. The first is an additional reason for prophylactic or elective repair of hernias in the patient who is otherwise a good surgical risk. The second is necessity to consider perforation of the intestine in any patient with a hernia who has been subjected to trauma. The authors have presented valuable and instructive data on an unusual syndrome.

Robert N. Hammerstrom, M.D.
Minneapolis, Minnesota

Payson, B. A., and Mage, S. "Role of Inguinal Hernia in Acute Perforation of the Small Intestine Secondary to Blunt Abdominal Trauma" Ann Surg 156:944, Dec. 1962

FECAL OCCULT BLOOD TEST

The fecal residue remaining on a plastic glove may be tested for the presence of occult blood by simply everting the examining finger and using it as a test tube. Either the benzidine or guaiac tests may be performed in the glove finger. Gloves may be identified by a wax pencil mark. This procedure is recommended for its greater ease in storage, identification, testing, and disposal of fecal samples.

Courtesy of References and Reviews
Journal of the American Medical Association

Neely, C. L., Jr.
Amer J Clin Path 38:528 Nov. 1962

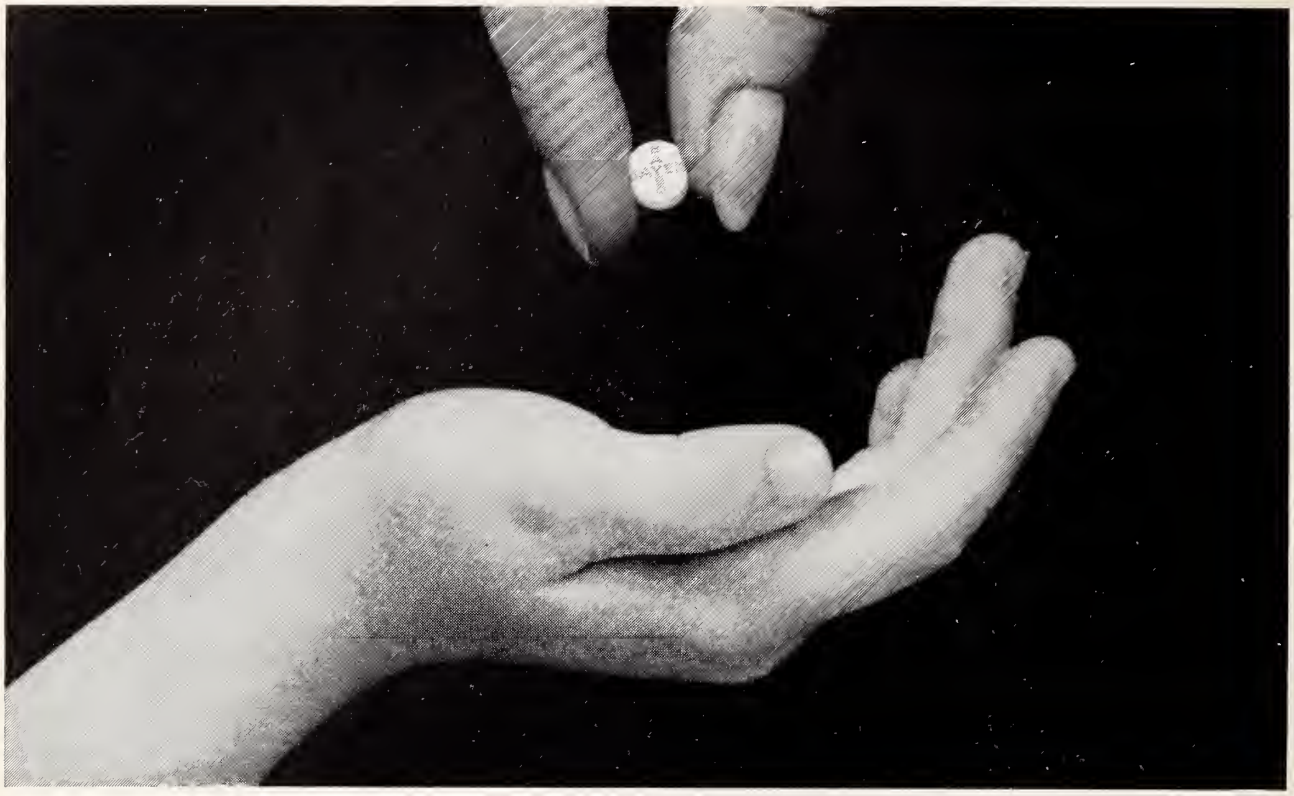
URINE OCCULT BLOOD TEST

A new reagent strip test for hematuria (Hemastix) was evaluated in 1,954 unselected urines. In 87% of those urine specimens containing more than 10 red blood cells per high-power field the result was positive, and blood was also detected in 16 specimens without microscopic hematuria. The test is considered a useful supplement to routine urinalysis in clinical laboratories.

Courtesy of References and Reviews
Journal of the American Medical Association

James, J. A., and Liebschutz, N. H.
Amer J Clin Path 38:554 Nov. 1962

Continued



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HEMOPHILUS INFLUENZAE MENINGITIS

Hemophilus influenzae meningitis is reported in 2 pairs of siblings under 3 years of age. Although there is no unanimity of opinion concerning prophylaxis to young children exposed to influenzal meningitis, chemoprophylaxis seems indicated in children between 2 and 36 months of age, for the bactericidal power of their blood is nil. In this age group the disease is severe and accompanied by a high mortality rate and frequent brain damage. Prophylaxis with chloramphenicol in the dose of 50 mg-kg-day or tetracycline in the dose of 30 mg-kg-day in 3 divided doses, during 5 days, is recommended.

Courtesy of References and Reviews
Journal of the American Medicial Association

Kline, A. H.
Amer J Dis Child 104:595 Dec. 1962

H. INFLUENZAE MENINGITIS

The infrequent occurrences of *Hemophilus influenzae* meningitis in adults is noted, and this series of 11 patients is added to 44 previously reported cases. Clinical manifestations are similar to other types of purulent meningitis. Influenzal meningitis in adults is frequently associated with an underlying disease state which impairs host resistance: 2 of these patients had cerebrospinal fluid rhinorrhea, 2 had diabetes mellitus, 1 probably had diabetes in addition to a cerebral vascular accident, and 4 had acute purulent otitis media or sinusitis with inadequate drainage. Only 3 had no underlying disease. A review of the literature emphasizes the association of *Hemophilus influenzae* infection in adults with impairment of the immune mechanism.

Courtesy of References and Reviews
Journal of the American Medical Association

Merselis, J. G.
Arch Intern Med 110:837 Dec. 1962

ASEPTIC MENINGITIS

Thirteen cases of aseptic meningitis due to ECHO virus Type 7 that occurred in Minnesota in 1959 are described. Eight of these constituted an epidemic in connection with a family picnic; 5 are unrelated to these or to each other. The virus was recovered from the feces of each patient and, in addition, from the cerebrospinal fluid of one. Serologic confirmations (rising antibody titer) was demonstrated in 7 cases. Clinical features and cerebrospinal fluid findings were characteristic. In all cases the course was short and benign; in one case there was transient muscular weakness of one shoulder. The experience is of interest (1) because acute current disease due to this virus has apparently not been described before and (2) because this virus was only 1 of 12 enteroviruses implicated in the etiology of the aseptic meningitis syndrome for that particular year.

Courtesy of References and Reviews
Journal of the American Medical Association

Kleinman, H., Ramras, D., Cooney, M., and Boyd, L. New Engl J Med 267:1116 Nov 29 1962

TRIGEMINAL NEURALGIA

Trigeminal neuralgia and hemifacial spasm are paroxysmal disorders limited to a single cranial nerve, occur only in adults, predominantly women, and usually present no other clinical signs. The paroxysms are precipitated by a stimulus and are subject to spontaneous remissions; each may be relieved by manipulating the nerve root so gently that no impairment of function results. Each may result from pressure of tumor or aneurysm on nerve root. When both occur in the same patient, such lesion always is present. These facts can be explained by the following theory: each paroxysm is the expression of a reversible pathophysiological state induced by pressure on the nerve root so gentle that axons are not interrupted. This brings intact axis cylinders into close relationship so that a reverberating circuit results from transaxonal excitation between afferent and efferent fibers. Hemifacial spasm results from such excitation alone while trigeminal neuralgia in addition involves a true trigeminal reflex. In trigeminal neuralgia the compression most commonly is exerted by the petrous ridge.

Courtesy of References and Reviews
Journal of the American Medical Association

Gardner, W., J Neurosurg 19:947 Nov 1962

CEREBRAL ANGIOGRAPHY

In a 5-year period, 2,000 consecutive patients undergoing all types of cerebral arteriography with sodium diatrizoate (Hypaque 50%) were reviewed. The majority were private, caucasoid patients in the fifth through the seventh decade. Vascular disease accounted for 47% of the clinical diagnoses, with arteriosclerosis representing 38%. Carotid arteriography, either direct or retrograde, was most commonly employed, although vertebral, subclavian, and brachial methods were also used. Local anesthesia was the choice in 92.5% of the 2,332 arteriograms. Complications occurred in 2.10% of the cases; 1.4% were transient, 0.34% severe, and 0.34% fatal. The most common mild complication was a transitory motor deficit followed by a transitory sensory deficit. A permanent motor deficit was the most common severe complication. Complications vary with the pathological process involved, and increase with age. Their incidence is determined by frequency rather than the particular artery involved. No complications occurred in 2.8% of patients who received anticoagulants during arteriography. Aseptic necrosis of a cervical disc along with an occasionally fatal retropharyngeal hematoma were also encountered.

Courtesy of References and Reviews
Journal of the American Medical Association

Feild, J. R., Robertson, J. T., and DeSaussure, R. L., J. Neurosurg 19:775 Sept. 1962

TRANSAMINASE LEVEL IN MUSCULAR DYSTROPHY

The serum of 64 patients with muscular dystrophy was analyzed for serum glutamic oxalo-acetic transaminase activity. In 23 of 24 cases of pseudohypertrophic muscular dystrophy, the transaminase was elevated above the normal. Higher values were obtained in younger patients. The mean value of the transaminase in these 24 patients was 6.6 micrograms per hour per milliliter with a range of 1.17 to 15.2 micrograms per hour per milliliter (upper limit of normal for males 1.48 micrograms per hour per milliliter). In one-half of 18 persons with the limb girdle type of muscular dystrophy, some increase of the transaminase was found. The mean of the values for these 18 subjects was 2.05 micrograms per hour per milliliter. Patients with myotonic dystrophy, myotonia congenita and ocular myopathy most often had normal transaminase values.

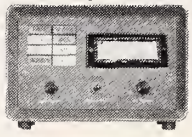
Peter J. Dyck, M.D.
Rochester, Minnesota

Siekert, R. G. "SGOT Level in Pateints with Muscular Dystrophy" Arch Neurol 8:56, Jan. 63.

Continued

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ENDOMETRIOSIS

The cause of endometriosis and the associated infertility is not clearly understood. The symptoms are undoubtedly due to local irritation and subsequent fibrosis in multiple areas of miniature menstruation in endometriotic foci. The infertility may result from inadequate tubo-ovarian motility secondary to fibrosis and scarring, with imperfect ovum acceptance by the fimbria.

Endometriosis has been noted with increasing frequency in the last 20 years and is reported to have been found in 5 to 15 percent of pelvic operations. The median age is about 37 years but about 15 percent of patients are under 30. The patients are often mesomorphic type, underweight, overanxious, intelligent, egocentric and perfectionist; most come from the higher socioeconomic groups.

It is still doubtful whether the infertility occurs because pregnancy is deferred or whether it is the eventual result of extensive endometriosis. The expectation of pregnancy in women with the disease is about half that of the general population. When the patients are operated on, specifically for endometriosis or during an "infertility laparotomy," 30 to 50 percent subsequently conceive.

Successful treatment should relieve pain, allow coitus, prevent abdominal bleeding and preserve or increase the probability of motherhood. Conservative surgery will accomplish this in most cases. When the patient does not contemplate or desire pregnancy, or is infertile, a combination of estrogens and progestogens should be given continuously and in increasing dosage to produce a pseudopregnancy.

Since 1956 over 200 women have been treated by this regimen, and 110 have had adequate follow-up for at least six months. Of the 53 patients who had hormone therapy, and no previous surgery for endometriosis, a satisfactory result was obtained in 42. Eighteen of the 38 who tried to conceive subsequently became pregnant. Remissions for as long as 40 months followed but recurrences were noted in 7 patients, who received further treatment. In recurrent cases treatment should last at least ten months.

Twenty-two patients were treated prophylactically immediately after operation. Pseudopregnancy was started on the fifth postoperative day and continued for three to six months, or if the disease involved the colon or bladder, for 12 months. Seven of these women had a subsequent pregnancy. No untoward effects have been noted in any of the treated women's infants.

Questions have arisen regarding the possible effects of prolonged treatment with progestational agents, but a patient who had continuous preoperative norethynodrel therapy (40 to 60 mg. daily) for a year showed no signs of androgenicity or adrenal dysfunction during the course.

Prolonged use of steroids for endometriosis has shown that they are effective inhibitors of ovulation and produce a decidual reaction in areas of endometriosis. About 85 percent of patients are improved. No abnormalities of endometrial ovarian or pituitary function were noted after the treatment and subsequent pregnancies occurred without complications in a high percentage of cases.

Courtesy of World Wide Abstracts
Excerpta Medica Foundation

Kistner, R. "Successful Therapy Should Relieve Pain, Allow Coitus and Increase Probability of Motherhood" Fertil Steril 13/3:237-45

CARCINOMA OF CERVIX

Apparent intraepithelial carcinomas of the uterine cervix, with rather extensive lymphatic invasion in the absence of stromal invasion, occurred in 4 asymptomatic women out of 198 with carcinoma in situ examined for a period of 4 consecutive years. Two patients had distant lymph node metastases. Examination of voluminous slides by step serial sections failed to reveal evidence of stromal invasion. The clinicians and pathologists should be alerted to the fact that apparent noninvasive cervical cancer does occasionally metastasize to the pelvic lymph nodes in the absence of demonstrable invasive stromal penetration. The careful examination of the cervical lymphatics by serial sectioning method seems necessary to substantiate the diagnosis of carcinoma in situ of the cervix.

Courtesy of References and Reviews
Journal of the American Medical Association

Song, J., and Turner, J. Arch Path 75: Jan 1963.

CARCINOMA OF CERVIX

The delay between the onset of symptoms and the time of an accurate diagnosis was measured in 94 women under 30 years of age who had cervical carcinoma. The results were compared with those in women 30 years of age and older who also had the disease. The average duration for all ages ranged from 7.4 to 5 mo. with, among women over 30, an average delay of 1 mo. attributed to the physician. On the contrary, among younger women the responsibility for the delay was about equally shared by physician and patient. Loss of time exceeding 6 mo. was more common in younger than in older women. Incorrect initial diagnosis with regard to invasive carcinoma of the cervix occurred more than 3 times as often in younger women, and this ratio became more unfavorable year by year. The greater number of errors in diagnosis was associated concomitantly with a greater use of inappropriate therapy. The routine use of cervical cytologic screening methods as a part of the complete physical examination has been more effective in a short period of time in lowering the incidence of advanced carcinoma than the educational programs previously used.

Courtesy of References and Reviews
Journal of the American Medical Association

Diddle, A., and Watts, J. Amer J Obstet Gynec 84: 745 Sept 15 1962.

PREGNANCY AFTER MYOMECTOMY

A follow-up study was made on all women who were operated on for myoma over a period of 30 years at an Amsterdam hospital. A conservative myomectomy was performed in 291 patients, whereas the myomatous uterus was extirpated in 936 women. There was no recurrance of myoma in 151 of the 291 patients. Sixty women became pregnant after the myomectomy; 40 of these had received treatment for sterility. Seventy-eight children were born to the 60 women; 74 of the deliveries were spontaneous, and 3 were forceps deliveries. In one woman rupture of the uterus occurred after a spontaneous delivery; she recovered after hysterectomy.

Courtesy of References and Reviews
Journal of the American Medical Association

van Tongeren, F. Ned T Geneesk 106:1755 Sept 1 1962

Continued



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GALLSTONES IN CHILDREN

Cholecystitis and cholelithiasis have been considered rarities in childhood. Linnemann in 1938 found gallbladder disease in only one child as compared with 3600 adults. Since that time diagnostic improvements have made it possible to recognize the disease earlier, and at the Crown Princess Louisa Children's Hospital the incidence disease in children seems to be rising.

To obtain a clearer concept of the incidence, symptoms and diagnostic difficulties, Soderlund and Zetterstrom analyzed the cases of 60 children 6 to 15 years old (57 girls, 3 boys) who were operated on at the hospital between January 1950 and April 1961.

The commonest and most important symptom was abdominal pain, sometimes occurring intermittenly in more or less typical attacks resembling those in adults. Localization of the pain below the right costal margin or in the epigastrium was noted in 47 cases, with radiation to the back and right shoulder in 30 cases.

Some children had pain in the periumbilical region. Pain after eating was reported in 17 children; vomiting and nausea occurred in 45 and constipation in 5. Body weight above normal was common.

Abdominal palpation was negative in some cases, even during an attack. Tenderness under the right costal margin, with or without rigidity, was present in 29 cases, tenderness over McBurney's point in 10. Slight fever was noted in 19 cases, an increased sedimentation rate in 11 of 44. Three patients had hemolytic anemia; jaundice was observed in 3 others.

Cholecystography showed stones in the gallbladder in 52 cases and no contrast filling in 8.

As is usual in children, the differential diagnosis presented some difficulties. On suspicion of appendicitis 10 patients, aged 14 years, had been subjected to surgery. Small children often localized the pain to the umbilical region, and in 3 girls this led to a diagnosis of umbilical colic.

Cholecystectomy was performed in 59 cases and cholecystectomy in 1 in which there was a concomitant hemolytic anemia. In the 3 patients with hemolytic anemia, splenectomy was carried out at the same operation. No deaths or postoperative complications occurred.

Cholecystectomy is the operation of choice, since there is a risk of recurrent calculi following cholecystotomy. However, in the only case in which cholecystotomy was performed, cholesystography 11 years later showed no disease. At follow-up examination 3 of the 59 cholecystectomized patients still had symptoms such as moderate biliary dyskinesia.

Courtesy of World Wide Abstracts
Excerpta Medical Foundation
New York, New York

Soderlund, S. and Zetterstrom, B.
Arch Dis Child 37/192:

ORAL B12 FOR PERNICIOUS ANEMIA

Daily oral doses of 100 mcg. of cyanocobalamin given for up to 3½ years were inadequate to maintain satisfactory serum vitamin B_{12} levels in 37 patients with pernicious anemia, although there was no hematological or neurological evidence of relapse. Such oral therapy cannot be regarded as safe for routine treatment of pernicious anemia.

Courtesy of References and Reviews
Journal of the American Medical Association

Thompson, R. B., Ashby, D. W., and Armstrong, E.
Lancet 2:577 Sept 22 1962

SUDDEN DEATHS IN INFANCY

So-called crib deaths in infancy constitute one of the largest and most distressing problems in forensic pathology. The attribution of these deaths to status thymicolymphaticus and to mechanical suffocation has been rejected on substantial grounds, and there seems no reason to reconsider this rejection. The authors favor the notion of infection, though conceding the possibility of a noninfectious metabolic catastrophe. New research insights are urgently needed. In the meanwhile, families should not be permitted to shoulder burdens of guilt, and pediatricians, general practitioners, and public health officials should be helped to greater awareness of the problem.

Courtesy of References and Reviews
Journal of the American Medical Association

Huntington, R., and Jarzynka, J., Amer J Clin Path 38:637 Dec 1962

THYROIDITIS IN CHILDREN

Lymphocytic thyroiditis is the commonest form of nontoxic goiter in childhood. Findings of 32 patients (23 proved by biopsy of thyroid) have been reviewed. The condition occurred mostly in preadolescent girls as a slowly developing, firm, diffuse goiter with or without symptoms of anxiety, nervousness, and pressure in the neck. Most of the patients were euthryroid in the beginning but mild hyperthyroidism or hypothyroidism can be present. The diagnosis can be supported by (1) a large difference between protein-bound iodine and butanol-extractable iodine, (2) positive tanned red-cell antibody test, (3) failure of the goiter to disappear quickly under thyroid therapy, and (4) needle biopsy of the thyroid. Microscopically the gland shows hyperplasia, diffuse lymphocytic infiltration, atrophy of the follicular epithelium, and minimal fibrosis. Long-term treatment with thyroid is recommended. Genetic predisposition, probably manifested by an abnormal cellular hypersensitivity, and excessive stimulation of the thyroid by the pituary hormone seem the 2 factors in pathogenesis best supported by laboratory evidence.

Courtesy of References and Reviews
Journal of the American Medical Association

Saxena, K. M. and Crawford, J. D.
Pediatrics 30:917 Dec 1962

CARCINOMA OF THYROID

Two of the authors (Horn and Ravdin) reported in 1951 a series of 22 patients with thyroid cancer who were 25 years of age or younger at the time the diagnosis was made. The present report is concerned with a resurvey of these patients. Two had died within the 10 years, one of thyroid cancer and one of another malignancy. Of the 20 who survive, 2 have pulmonary metastases and 18 are without evidence of disease. It was learned during the interval that 11 of the patients had received irradiation of the thymus during infancy. While nearly all of the reported cases of thyroid cancer with a history of previous irradiation are in young persons, the data so far accumulated still do not prove that irradiation causes thyroid cancer in man, or that children are more susceptible than adults. It has been established, however, that the majority of children in whom thyroid cancer has been diagnosed have a history of prior therapeutic irradiation.

Courtesy of References and Reviews
Journal of the American Medical Association

Raventos, A., Horn, R., and Ravdin, I. J Clin Endocr 22:886 Sept 1962

Continued

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POSTSPLENECTOMY INFECTIONS

Horan and Colebatch studied the records of 142 cases in which splenectomy was done at or before the age of 16 years, for trauma in 64 cases and for various diseases in the others.

In 17 cases serious infections had occurred before splenectomy — 12 cases of pneumonia, 4 meningitis and 1 osteomyelitis. After splenectomy 5 patients developed fatal infections and 12 had serious but not fatal infections.

Two of the fatal infections occurred in the 132 children over a year old, 3 in the 10 infants under 1 year. Splenectomy seems to open a major hazard of infection in infants.

Of the 64 traumatic cases, a serious but non-fatal infection developed in 4. In the 78 cases splenectomized for disease the incidence of serious infection was 13, and 5 of these were fatal. Underlying disease evidently increases the risk.

Infections following splenectomy included meningitis in 3 cases, pneumonia in 6, subphrenic abscess in 3, osteomyelitis and genitourinary tuberculosis in 1 case each. Four fifths occurred in the first two years after splenectomy.

It follows that in children, and particularly in infants, all the factors involved should be carefully assessed before advising splenectomy; and after the operation long-term prophylaxis, preferably with penicillin, is advisable.

Courtesy of World-Wide Abstracts
Excerpta Medica Foundation

Horan, M. and Colebatch, J., Arch Dis Child 37/194: 396-414

SPLENECTOMY AND INFECTIONS

A review of the literature revealed a lack of proof of a relation between splenectomy and any serious infections. In fact, a 1955 treatise on "Splenic Function" stated that "the spleen can be removed with relative impunity and low mortality and is not in any way essential to life." The authors report the results of a follow-up study on 142 patients in whom splenectomy was performed during childhood. The incidence of septicemia and meningitis in infants after splenectomy was much higher than occurs in a normal infant population. A significant relation was found between the incidence of serious postsplenectomy infections and the age of the patient at operation. The greater susceptibility of infants was striking when the analysis was confined to fatal and life-threatening infections. In children over 1 year of age the risk of serious infections following splenectomy was still appreciable. Of all serious infections recorded following splenectomy, 80% occurred within 2 years of operation. Post-splenectomy infections tended to follow a characteristic pattern. The course is fulminating, the mortality is high, the infecting organism is predominantly pneumococcic, and there is a tendency to recurrent attacks. In a few cases of congenital absence of the spleen, infections strikingly similar to those following surgical removal of the spleen were the commonest findings at autopsy.

Courtesy of References and Reviews
Journal of the American Medical Association

Horan, M., and Colebatch, J. H.
Arch Dis Child 37:398 Aug. 1962

AGAMMAGLOBULINEMIA

Of 37 patients with agammaglobulinemia (18 boys with the congenital form and 19 men and women with the acquired form) 11 have developed rheumatoid arthritis or atypical arthritis. One developed diffuse fibrinoid disease which involved the blood vessels throughout the body.

In the literature dermatomyositis, juvenile rheumatoid arthritis and scleroderma have been reported in agammaglobulinemic patients. An immunologic deficiency in these patients is said to be the basis of the clinical stigmata occurring in them. Study of agammaglobulinemia may supply valuable clues to the causation of some connective tissue diseases.

Courtesy of World Wide Abstracts
Excerpta Medica Foundation

Rotstein, J. and Good, R. A. "Avenue for Research: Connective Tissue Disease in Twelve of Thirty-seven Cases," Ann Rheum Dis 21/2:202-06

HYPERIMMUNIZATION

Allergic reactions and other syndromes such as arthritis and collagen-like diseases have given impetus to a study of the concept that hypersensitivity phenomena may be an etiological factor in the pathogenesis of systemic connective tissue diseases. Since allergic sensitization may result from parenteral inoculation of foreign protein, immunization has been implicated as a possible etiological factor in such diseases. Intensive immunization of experimental animals has induced severe pathological tissue changes such as arteritis, carditis, nephritis, and amyloidoses, but similar observations have not been conclusively reported in man. The author had an opportunity to study 100 Strategic Air Command crew members, who had rather vigorous immunizations for several years, and 100 military men of similar age who had only the routine immunizations as required by the Air Force. The results of this study are presented. In the relatively hyperimmunized men, no disease was found which might be attributed to immunization. The only finding that was significantly different in the 2 groups of men was a higher incidence of lymphocytosis in the test group. This is not considered to be a harmful effect of intense immunization, although its significance is not known. It was not definitely concluded that the lymphocytosis resulted from antigenic inoculations.

Courtesy of References and Reviews
Journal of the American Medical Association

Haycraft, R. G.
Milit Med 127:745 Sept. 1962

ANEMIA IN ALCOHOLICS

Nine cases of an acute anemia that appears to be hemolytic in nature have been noted in chronic alcoholics after unusually heavy alcohol intake. Six had fatty infiltration of the liver and elevation of blood lipids. In 3 portal fibrosis was present, and blood lipids were normal. None had evidence of gastrointestinal bleeding or hypersplenism. The anemia was usually mild to moderate and short-lived. Improvement occurred quickly and spontaneously after hospitalization. Those who had hepatomegaly due to fatty infiltration had a rapid decrease in liver size and little or no residual evidence of hepatic dysfunction. Although the anemia appeared hemolytic in character, red blood cell survival was only slightly decreased in the 2 patients studied.

Courtesy of References and Reviews
Journal of the American Medical Association

Myerson, R. M., and Gilbert, D. Amer J Med Sci 244:969 Dec 1962

End



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The Committee on Scientific Assembly has been fortunate in arranging a widely varied program which should be of interest to all doctors, regardless of their type of medical practice.

"Emphysema — Who will live? Who will die?" is the title of the paper to be presented by Doctor R. Drew Miller, Rochester, at the opening scientific session scheduled to convene Monday, May 20, at 10:00 A.M. in the Duluth Armory. At 10:25 A. M. Doctors Eugene F. Bernstein, H. O. Peterson, James B. Carey, Jr., all of the University of Minnesota Hospital staff where this procedure was pioneered, will discuss "Peptic Ulcer Freezing as a Treatment." "Which Patients an Fly?" a question frequently asked by doctors as well as patients will be discussed at 11:00 A. M. by Doctor Charles E. Billings, Jr., of Columbus, Ohio. The concluding Monday morning session at 11:35 A.M. will feature a paper by Doctor Robert A. Good, Minneapolis, entitled "Function of the Thymus Gland — New Concepts."

Following Monday's 12:15 P. M. Round Table Luncheons, Doctor S. R. Maxeiner, Jr., of Minneapolis will speak on the "Acute Abdomen."

Continued

At 2:00 P.M. three Minneapolis physicians, Doctors Yoshio Sako, Moderator, Claude Hitchcock, and W. A. Sullivan, Jr., will present various aspects of "The Open Treatment of Burns." At the concluding Monday scientific presentation at 4:00 P.M., Doctor Frank Krusen, Minneapolis, will act as moderator to a "Symposium on Rehabilitation." Subjects and the physicians presenting them include "Physical Therapeutic Procedures for Arthritis," Glenn Gullickson, Minneapolis; "Physical Treatment of Painful Shoulder," Donald Erickson, Rochester; "Long-Term Care of Paraplegics and Quadriplegics," Herbert Schoening, Minneapolis; "The Personal Physician's Role in Rehabilitation," Paul Ellwood, Jr., Minneapolis.

The Committee is pleased to announce that for the first time the scientific session scheduled for Tuesday, May 21, the second day of our Annual Meeting has been approved for Category I Credit by the American Academy of General Practice. The Tuesday session is sponsored jointly by the Minnesota Academy of General Practice and the Minnesota State Medical Association and should be of particular interest to the physician in General Practice.

Doctor C. D. Creevy, Minneapolis, will present the paper, "Urologic Infections in Children" at 9:00 A.M. on Tuesday. At 9:25 A.M. Doctor Edward L. Strem of St. Paul will talk about "The Asthmatic Child." Next, physicians will hear a discussion of "Fractures of the Wrist and Elbow in Children" presented at 9:50 A.M. by Doctor Frank S. Babb, St. Paul. Following Doctor Babb's paper, the "Treatment of Knee Injuries" will be discussed by Doctor W. H. Burnham of Minneapolis, at 11:00 A.M. The concluding portion of the Tuesday morning scientific program will be a discussion of "Acute Cardiac Emergencies," to be given by Doctor David M. Craig, St. Paul, at 11:35 A.M.

At the first afternoon session, scheduled for 2:00 P.M., physicians will learn from Doctor Raymond N. Bieter, Minneapolis, about "New Problems in Drug Therapy." The next item on the Tuesday afternoon scientific program scheduled for 2:40 P.M. is entitled "Mammography for the Problem Breast." Participants in this presentation include Doctors David M. Witten, Rochester, and Hugh J. Williams, St. Paul. The final portion of the Tuesday afternoon session will include the following paper: "Missed Abortion," presented by Doctor Albert F. Hayes, St. Paul; "Pitfalls of Uterine Curettage," Doctor Konald Prem, Minneapolis; "Induction of Labor," Doctor Frederick L. Schade, Worthington; and "Obstetric Analgesia and Anesthesia," Doctor James J. Anderson, St. Paul.

Three scientific presentations have been scheduled for Wednesday morning, May 22. The first paper will be given at 9:00 A.M. by Doctor Wendell H. Hall, Minneapolis. His subject will be "Use and Abuse of Therapeutic Agents in Infectious Diseases." Following Doctor Hall's paper Doctor Joseph Leek of Duluth will discuss "Middle Ear Surgery — Who Can Benefit?" at 9:40 A.M. At 11:00 A.M. "Ten Year Documentary on Ovulation Control," a film will be shown. This will be followed by a discussion led by Doctor A. O. Swenson of Duluth.

Round Table Luncheons — A total of eight of the perennially popular Round Table Luncheons have been scheduled for Monday, May 20, and Tuesday, May 21, at 12:15 P.M. Round Table Luncheons scheduled for Monday include the following: "Management of the Patient With Chronic Cough" by Doctor R. Drew Miller; "Care of the Patient Following Abdominal Surgery," Doctor S. R. Maxeiner, Jr.; "Selection of Patients for Peripheral Vascular Evaluation and Surgery," Doctor Claude R. Hitchcock; "Physical Medicine for Arthritics," Doctor Donald J. Erickson.

Tuesday's Round Table Luncheon subjects will be: "Femoral Arteriography in Urology," Doctor C. D. Creevy; "Crutches and Canes," Doctor W. H. Burnham; "Recent Developments in Obstetrics," Doctor Nicholson J. Eastman; and "After a Coronary — What?," Doctor David M. Craig, St. Paul.

Reservations for Round Table Luncheons

Tickets should be purchased in advance for these luncheons (4 on Monday and 4 on Tuesday). Tickets may also be purchased at the registration desk at the Duluth Armory. Latecomers are accommodated according to their choice, if luncheon limits have not already been reached. If any tickets remain unsold by approximately 11:30 A.M. the day of the luncheon, they can be purchased in the lobby of the Hotel Duluth.

Continued

Social Events, Annual Banquet

Physicians and their wives are cordially invited to attend the Annual Banquet, Tuesday, May 21, at 7:00 P.M. in the Hotel Duluth Ballroom. The Banquet will be preceded by a social hour beginning at 6:00 P.M. Honored banquet guests will be the Fifty Club Candidates. Following the banquet the Committee has arranged an evening of outstanding entertainment, including a floor show and dancing.

The banquet program will also include the presentation by the Southern Minnesota Medical Society of a medal for the most outstanding scientific exhibit.

Sports Events

Tee off time for the Annual Golf Tournament is 10:00 A.M. to 12:00 noon at the Northland Country Club. Prizes will be awarded. The entry fee is $5.00.

Skeet Events

These will start at 10:30 A.M. at the Duluth Air Base, off Highway No. 53.

Trap Events

These will be held at De Loia's Pike Lake off Highway No. 53 at 2:00 P.M. A special high tower trophy event will follow the trap shooting. A caterer's luncheon will be available at the Club House prior to the shooting time of 2:00 P.M.

Trophies

The Malcolm Pfunder Skeet Trophy and the Vernon D. E. Smith Razzle Dazzle Trophy, both held for one year only, will be awarded. The Trap Committee Trophy of 1963, also a rotating trophy, will be awarded for trap shooting. Additional attractive prizes will be available.

Participants in sports events and their wives are invited for cocktails and buffet at 5:00 P.M. at the Northland Country Club; $2.50 per plate.

Business Sessions

A capsule time table of Annual Meeting business sessions is as follows:

Saturday, May 18, 6:00 P.M. — Council Dinner.

Sunday, May 19, 8:00 A.M.—Council Breakfast; 12:00 P.M. Council Luncheon; 2:00 P.M. House of Delegates Meeting; 6:00 P.M. New Members, County Officers and Delegates Dinner; 8:00 P.M. Reference Committee Meetings.

Monday, May 20, 8:00 A.M. — Council Breakfast; 9:30 A.M. — Reference Committee Meetings.

Tuesday, May 21, 7:30 A.M. — Council Breakfast; 9:00 A.M.. House of Delegates Meeting.

Wednesday, May 22, 8:00 A.M. — Council Breakfast.

Convention Arrangements

COMMITTEE ON SCIENTIFIC ASSEMBLY

Donald McCarthy, President, General Chairman .....Fort Snelling
Haddon M. Carryer, Past President (ex officio) Rochester
John C. Feuling (ex officio).....Duluth
B. J. McGroarty (ex officio).....St. Paul
Mr. H. W. Brunn, Executive Secy. (ex officio)....St. Paul
Lawrence R. Boies.....Minneapolis
Cyrus C. Brown, Jr.....Duluth
Robert S. Fontana.....Rochester
N. L. Gault, Jr.....Minneapolis
Robert B. Potter.....Minneapolis
J. J. Swendson.....St. Paul
John V. Thomas.....Duluth
W. H. A. Watson.....St. Paul
John S. Welch.....Rochester

ST. LOUIS COUNTY MEDICAL SOCIETY

President—M. O. Wallace.....Duluth
Vice President—Gordon C. MacRae.....Duluth
Secretary-Treasurer—W. H. Grohs.....Duluth

COMMITTEE ON LOCAL ARRANGEMENTS

General Chairman—John C. Feuling

Banquet—Gordon J. Strewler, Chairman

Bridge Tournament—D. J. Goldish, Chairman

Entertainment—Vernon A. Harrington, Jr., Chairman

Golf—J. J. Asta, Chairman; William D. Rudie, Peter J. Bartzen

Hospitality—A. O. Swenson, Chairman

Parking and Transportation—Harold J. Walder, Chairman; Roy C. Pedersen, R. O. Bergan

Public Relations—R. J. Goldish, Chairman; Howard J. Meyer, Mr. H. E. Westmoreland

Hotel Reservations—Donald J. Van Ryzin, Chairman

Scientific Exhibits—John P. Knoedler, Chairman; F. T. Becker, A. O. Swenson

Skeet and Trap—Earl E. Barrett, Chairman; J. M. Streitz

Woman's Auxiliary—Mrs. Francis W. Conley, Chairman; Mrs. William A. Swedberg, Co-Chairman.

Continued

REFERENCE COMMITTEES OF THE HOUSE OF DELEGATES

Meetings: Sunday, 8:00 p.m.; Monday, 9:30 a.m.
Hotel Duluth

SCIENTIFIC REFERENCE COMMITTEES

Medical Education Reports . . . Sunday: Room 618
Monday: Room to be assigned
Arnold S. Anderson, Jr., Minneapolis, Chairman; Barnard Hall, St. Paul; Raymond Jackman, Rochester; Robert T. Kelly, Grand Rapids; John K. Meinert, Willmar; J. Donald Sjoding, Mankato.

Miscellaneous Scientific Reports . . . Sunday: Room 619
Monday: Room to be assigned
J. W. Halvorson, Zumbrota, Chairman; J. A. Blake, Hopkins; J. G. Fee, St. Paul; O. M. Heiberg, Worthington; W. F. Nordman, Mora; L. O. Underdahl, Rochester.

NON-SCIENTIFIC REFERENCE COMMITTEES

Credentials.....Registration Desk, Ballroom
(Meets only before House convenes)
R. O. Bergan, Duluth, Chairman; C. A. Anderson, Hector; J. J. Smyth, Lester Prairie.

Medical Economics Reports . . . Sunday: Norse Room-Ballroom Floor — Monday: Norse Room-Ballroom Floor
Leo A. Nash, St. Paul, Chairman; L. A. Knutson, Spring Grove; J. T. Moehn, Minneapolis; G. J. Mouritsen, Fergus Falls; D. O. Osborn, Austin; L. E. Steiner, Albert Lea.

Miscellaneous Medical Economics Reports . . . Sunday: Italian Room-Ballroom Floor — Monday: Italian Room-Ballroom Floor
W. S. Neff, Virginia, Chairman; R. E. Carlson, Stillwater; Leighton W. Larson, Waconia; G. C. MacRae, Duluth; C. A. Neumeister, Minneapolis; R. T. Petersen, St. Cloud.

Officers and Councilors Reports . . . Sunday: Parlor B-Ballroom Floor — Monday: Parlor B-Ballroom Floor
G. R. Diessner, Rochester, Chairman; Charles C. Cooper, St. Paul; W. J. Deweese, Bemidji; V. M. Johnson, Dawson; Paul Linner, Minneapolis; L. J. Wilson, Rushford.

Resolutions . . . Sunday: Arrowhead Room-Ballroom Floor — Monday: Room 418
Les N. Dale, Red Lake Falls, Chairman; C. H. Christensen, Duluth; A. B. Hayles, Rochester; A. E. Ritt, St. Paul; K. E. Sandt, Minneapolis; M. P. Virnig, Wells.

Business Sessions

COUNCIL, HOUSE OF DELEGATES AND COUNTY OFFICERS HOTEL DULUTH

SATURDAY, MAY 18

6:00 P.M.—Council Dinner.....English Room

SUNDAY, MAY 19

8:00 A.M.—Council Breakfast.....English Room
12:30 P.M.—Council Luncheon .....Italian Room
2:00 P.M.—House of Delegates Meeting.....Ballroom
6:00 P.M.—New Members, County Officers and Delegates Dinner .....Ballroom
8:00 P.M.—Reference Committee Meetings

MONDAY, MAY 20

8:00 A.M.—Council Breakfast .....English Room
9:30 A.M.—Reference Committee Meetings

TUESDAY, MAY 21

7:30 A.M.—Council Breakfast .....English Room
9:00 A.M.—House of Delegates Meeting .....Ballroom

WEDNESDAY, MAY 22

8:00 A.M.—Council Breakfast .....English Room

Committee Meetings

HOTEL DULUTH SUNDAY, MAY 19

8:00 P.M.—Reference Committees:
Medical Education Reports .....Room 618
Miscellaneous Scientific Reports .....Room 619
Medical Economics Reports .....Norse Room
Miscellaneous Medical Economics Reports .....Italian Room
Officers and Councilors Reports .....Parlor B
Resolutions .....Arrowhead Room

Continued

MONDAY, MAY 20

7:30 A.M.—Committee Breakfasts

Anesthesiology	Ballroom
Athletic Injuries	Ballroom
Board of Editors	Room 619
Cancer	Room 919
Child Health & Immunization	Room 1019
Diabetes	Room 1219
General Practice	Room 419
Industrial Health	Room 618
Insurance Liaison	Ballroom
Membership	Room 918
Military & Veterans Affairs	Ballroom
Professional Liability	Ballroom
Public Health Education	Ballroom
Joint Meeting—Public Policy and Statewide Congressional	Black Bear Lounge
Radiation & Radio-Active Isotopes	Room 1018
Rheumatology & Rheumatic Diseases	Room 1218
Rural Medical Service	Ballroom

9:30 A.M.—Reference Committee Meetings

Medical Education Reports	To be Assigned
Miscellaneous Scientific Reports	To be Assigned
Medical Economics Reports	Norse Room
Miscellaneous Medical Economics Reports	Italian Room
Officers and Councilors Reports	Parlor B
Resolutions	Room 418

WEDNESDAY, MAY 22

7:30 A.M.—Committee Breakfasts

Blood & Blood Banks	Ballroom
Disaster Medical Care	Arrowhead Room
Historical	Ballroom
Hospitals & Professional Relations	Ballroom
Judicial	Norse Room
Obstetrics, Gynecology & Maternal Health	Italian Room
Rehabilitation, Medical Committee on	Ballroom
State Health Relations	Ballroom
University Relations	Ballroom

Scientific Program

Monday Morning

DULUTH ARMORY

Chairman: Robert S. Fontana

A.M. Visit Scientific and Technical Exhibits

10:00 EMPHYSEMA—WHO WILL LIVE? WHO WILL DIE?
R. Drew Miller, Rochester
Questions

10:25 PEPTIC ULCER—FREEZING AS A TREATMENT
Eugene F. Bernstein, Minneapolis
H. O. Peterson, Minneapolis
James B. Carey, Jr., Minneapolis
Questions

11:00 WHICH PATIENTS CAN FLY?
Charles E. Billings, Jr., Columbus, Ohio.
Questions

11:35 FUNCTION OF THE THYMUS GLAND—NEW CONCEPTS
Robert A. Good, Minneapolis
Questions

Monday Afternoon

Chairman: John V. Thomas

P.M.

12:15 ROUND TABLE LUNCHEONS

1:30 Visit Scientific and Technical Exhibits

2:00 THE ACUTE ABDOMEN
S. R. Maxeiner, Jr., Minneapolis
Questions

2:30 THE OPEN TREATMENT OF BURNS
Yoshio Sako, Minneapolis—Moderator
Claude R. Hitchcock, Minneapolis
W. A. Sullivan, Jr., Minneapolis
Questions

3:15 Visit Scientific and Technical Exhibits

4:00 SYMPOSIUM ON REHABILITATION
Frank H. Krusen, Minneapolis—Moderator
Physical Therapeutic Procedures for Arthritis
Glenn Gullickson, Minneapolis
Physical Treatment of Painful Shoulder
Donald J. Erickson, Rochester
Long-term Care of Paraplegics and Quadriplegics
Herbert A. Schoening, Minneapolis
The Personal Physician's Role in Rehabilitation
Paul M. Ellwood, Jr., Minneapolis
Questions

Continued

Tuesday Morning

DULUTH ARMORY
Chairman: Robert B. Potter

A.M.

Visit Scientific and Technical Exhibits

9:00 UROLOGIC INFECTIONS IN CHILDREN
C. D. Creevy, Minneapolis
Questions

9:25 THE ASTHMATIC CHILD
Edward L. Strem, St. Paul
Questions

9:50 FRACTURES OF THE WRIST AND ELBOW IN CHILDREN
Frank S. Babb, St. Paul
Questions

10:15 Visit Scientific and Technical Exhibits

11:00 TREATMENT OF ATHLETIC INJURIES OF THE KNEE
W. H. Burnham, Minneapolis
Questions

11:35 ACUTE CARDIAC EMERGENCIES
David M. Craig, St. Paul
Questions

Tuesday Afternoon

Chairman: William H. A. Watson

P.M.

12:15 ROUND TABLE LUNCHEONS

1:30 Visit Scientific and Technical Exhibits

2:00 NEW PROBLEMS IN DRUG THERAPY
Raymond N. Bieter, Minneapolis
Questions

2:40 MAMMOGRAPHY FOR THE PROBLEM BREAST
David M. Witten, Rochester
Discussion—Hugh J. Williams, St. Paul

3:15 Visit Scientific and Technical Exhibits

Obstetric Manikin Demonstration
Nicholson J. Eastman, Minneapolis, Professor and Acting Head, Department of Obstetrics and Gynecology, University of Minnesota

4:00 MISSED ABORTION
Albert F. Hayes, St. Paul
Questions

Pitfalls of Uterine Curettage
Konald Prem, Minneapolis
Questions

Induction of Labor
Frederick L. Schade, Worthington
Questions

Obstetric Analgesia and Anesthesia
James J. Anderson, St. Paul

Tuesday Evening

7:00 ANNUAL BANQUET—Ballroom, Hotel Duluth
Preceded by social hour beginning at 6:00 P.M.
Outstanding Entertainment, Floor Show and dancing.
Presentations:
Fifty Club Certificates
Southern Minnesota Medical Association Medal
Distinguished Service Award

Wednesday Morning

DULUTH ARMORY
Chairman: C. C. Brown, Jr.

A.M

Visit Scientific and Technical Exhibits

9:00 USE AND ABUSE OF THERAPEUTIC AGENTS IN INFECTIOUS DISEASES
Wendell H. Hall, Minneapolis
Questions

9:40 MIDDLE EAR SURGERY — WHO CAN BENEFIT?
Joseph H. Leek, Duluth
Questions

10:15 Visit Scientific and Technical Exhibits

11:00 MOTION PICTURE FILM ON OVULATION CONTROL
Discussion—A. O. Swenson, Duluth

Continued

ROUND TABLE LUNCHEONS

HOTEL DULUTH

MONDAY

12:15 P.M.

Management of the Patient with Chronic Cough .....Moorish Room
R. Drew Miller, Rochester

Care of the Patient Following Abdominal Surgery .....Arrowhead Room
S. R. Maxeiner, Jr., Minneapolis

Selection of Patients for Peripheral Vascular Evaluation and Surgery .....Ballroom
Claude R. Hitchcock, Minneapolis

Physical Medicine for Arthritics .....Italian Room
Donald J. Erickson, Rochester

TUESDAY

12:15 P.M.

Femoral Arteriography in Urology .....Norse Room
C. D. Creevy, Minneapolis

Crutches and Canes .....Italian Room
W. H. Burnham, Minneapolis

Recent Developments in Obstetrics .....Moorish Room
Nicholson J. Eastman, Minneapolis

After a Coronary . . . What? .....Arrowhead Room
David M. Craig, St. Paul

Announcements

***Register and Secure Your Badge** at the Registration Desk, Duluth Armory, on Monday from 9:00 a.m. to 5:15 p.m.; Tuesday, from 8:45 a.m. to 5:15 p.m.; Wednesday, 8:45 a.m. to 12:00 noon. Please wear your badge while you are on the convention floor. No registration fee for those who present a membership card or receipt or other evidence of membership from their county society or state association or the American Medical Association.

***Telephone Service:** Registration desk, Duluth Armory —724-7782. For those at business sessions, breakfasts or luncheons at the Hotel Duluth, call our Headquarters Office at the hotel—722-0708 (direct line).

***Reservations for Round Table Luncheons.** Tickets should be purchased in advance for these luncheons (4 on Monday and 4 on Tuesday); please complete and return the enclosed reservation card. Tickets may also be purchased at the registration desk at the Duluth Armory. Latecomers are accommodated according to their choice, if luncheon limits have not already been reached. If any tickets remain unsold by approximately 11:30 a.m. the day of the luncheon, they can be purchased in the lobby of the Hotel Duluth. Tickets $2.50, gratuity included.

***Annual Banquet** — Ballroom, Hotel Duluth, 7:00 p.m. on Tuesday. Preceded by social hour beginning at 6:00 p.m. Outstanding entertainment — floor show and dancing. Formal dress is not required, except that it is customary for head table guests. Fifty Club candidates will be honored guests, and a medal for the outstanding scientific exhibit will be presented by the Southern Minnesota Medical Association. Tickets should be purchased in advance by using the enclosed reservation card, or they may be secured at the Registration Desk at the Duluth Armory. Tickets, $7.50, cocktails, dinner, dancing, late evening buffet and gratuity included.

***Visit the Exhibits.** Visit the scientific and technical exhibits at the Duluth Armory. You are urged to show your appreciation to the technical exhibitors who have helped to make this meeting possible.

***Woman's Auxiliary.** Physicians' wives who attend the meeting may secure Woman's Auxiliary programs at the Auxiliary Registration Desk in the mezzanine of the Hotel Duluth.

Sports Events

SUNDAY, MAY 19

GENERAL INFORMATION: Participants in sports events and their wives are invited for cocktails and buffet at 5:00 p.m. at the Northland Country Club; $2.50 per plate. Please mark your reservations for sports events on either of the cards you will receive with your official program and return immediately.

GOLF TOURNAMENT

Place: Northland Country Club.
Tee-off Time: 10:00 a.m.—12:00 noon.
Prizes will be awarded. Entry fee—$5.00.

SKEET AND TRAP EVENTS

Skeet Events—Starting at 10:30 a.m. at the Duluth Air Base, off Highway #53.

Trap Events—Will be held at DeLoia's Pike Lake trap grounds near Pike Lake, off Highway #53.
Time: 2:00 p.m.
Special Event—A special high tower trophy event will follow the trap shooting.
A caterer's luncheon will be available at the Club House prior to the shooting time of 2:00 p.m.
Trophies: The Malcolm Pfunder Skeet Trophy and the Vernon D. E. Smith Razzle Dazzle Trophy, both held for one year only, will be awarded. The Trap Committee Trophy of 1953, also a rotating trophy, will be awarded for trap shooting. Additional attractive prizes will be available. Make reservations for all shooting events with E. E. Barrett on the enclosed reservation card.

WOMAN'S AUXILIARY OUTLINES
41st ANNUAL MEETING

Can you join us this year for the Auxiliary's 41st Annual Meeting, which will be held in the seaport city of Duluth on Monday and Tuesday, May 20 and 21?

The convention committee, under the chairmanship of Mrs. F. W. Conley and Mrs. W. A. Swedberg, Duluth, has planned an outstanding program for your information and enjoyment.

On Monday at 3:00 P.M. a tea in honor of Mrs. C. Rodney Stoltz, National Auxiliary President-Elect and our own President and Vice-Presidents, will be held at the Duluth Woman's Club. All visiting doctors' wives, as well as all auxiliary members, are cordially invited to be the guests of the St. Louis County Medical Auxiliary at this tea.

On Tuesday, May 21, the Rev. Dr. Paul B. McCleave, Director of the Department of Medicine and Religion of the American Medical Association, will address the Annual Meeting. All who were fortunate enough to hear Rev. Dr. McCleave's address at the 1962 Mid-Winter Board Meeting know what an outstanding addition he is to this program — and all who have not yet heard him will most certainly want to take advantage of this opportunity.

Later that day, at the Annual Luncheon, Dr. Donald McCarthy, President of the Minnesota State Medical Association, will make a brief address, followed by a speech by Mrs. C. Rodney Stoltz. The Concert Quartet, well-known for their outstanding musical entertainment, will present a delightful medley of popular show tunes.

The Annual Banquet for doctors and their wives will be held at 7:00 P.M. Tuesday evening in the Ballroom of the Hotel Duluth. A new innovation this year will be a special late evening buffet after the usual entertainment and dancing.

We sincerely hope you can join us for this outstanding program on May 20 and 21.

MONDAY, MAY 20

9:00 A.M.—Registration.....Mezzanine, Hotel Duluth
10:30 A.M.—Executive Board Meeting .....Kitchi Gammi Club, 831 E. Superior Street
1:00 P.M.—Executive Board Luncheon .....Kitchi Gammi Club (Tickets $2.50)
3:00 P.M.—Tea .....Duluth Woman's Club, 2400 E. Superior Street

OPEN EVENING

TUESDAY, MAY 21

9:00 A.M.—Registration.....Mezzanine, Hotel Duluth
9:30 —Annual Meeting .....Northland Country Club, 3901 E. Superior Street

Open to all members of the Auxiliary

Presiding—Mrs. M. I. Hauge, President, Clarkfield
Pledge of Allegiance and Auxiliary Pledge — Mrs. Alvin M. Jensen, Brownton
Welcome—Mrs. Victor R Krueger, President, St. Louis County Medical Auxiliary
Response—Mrs. John B. Rutledge, Detroit Lakes
Presentation of Convention Chairmen—Mrs. F. W. Conley and Mrs. William A. Swedberg, Duluth
Address—Rev. Dr. Paul B. McCleave, Director, Department of Medicine and Religion, American Medical Association
In Memoriam Service—Mrs. Karl W. Anderson, Excelsior
Business Meeting
Election of Officers

1:00 P.M.—Annual Luncheon.....Northland Country Club, 3901 E. Superior Street (Tickets—$3.00)

Invocation
Guest Speaker—Mrs. C. Rodney Stoltz, Watertown, South Dakota, National President-Elect
Remarks—Dr. Donald McCarthy, President, Minnesota State Medical Association
Installation of Officers—Mrs. Walter P. Gardner, St. Paul
Presentation of President's Pin and Gavel—Mrs. M. I. Hauge, Immediate Past President
Greetings from New President—Mrs. Leo W. Fink, Minneapolis
Concert Quartet—"Show Tunes"
Post Convention Board Meeting

7:00 P.M.—Annual Banquet....Ballroom, Hotel Duluth

Board of Medical Examiners

Re: State of Minnesota -vs- Joel E. Brown

On March 1st, 1963 Joel E. Brown, 34, 209 Ninety-Eighth Ave. N.E., Coon Rapids, Minnesota was sentenced by the Hon. Luther Sletten, Judge of the District Court of Hennepin County, to a term of five years in the State Prison at Stillwater, Minnesota for the crime of forgery in the second degree. Judge Sletten then immediately stayed the execution of the sentence for five years and placed Brown on probation for the same period of time. The defendant had entered a plea of guilty before Judge Sletten on January 25th, 1963 to the forgery charge, the basis of which was the forging of a Minneapolis physician's signature to dexedrine prescriptions.

The defendant was arrested January 4th 1963 after he had attempted to obtain 90 dexedrine tablets at the Kass Drug Store, 330 West Broadway, Minneapolis by means of a forged prescription. The pharmacist became suspicious because of the number of tablets that the prescription called for and, after learning from the physician whose name appeared thereon that he had no knowledge of the purported patient and also that some of his prescription blanks had been stolen, called police.

Brown gave a written statement detailing his past activities in obtaining dexedrine by means of forged prescriptions and he related therein that after he had been buying the drug for some time from a man he knew as "Sam" or "Nig", whom he always met on the street on lower Hennepin Avenue, the man told him approximately ten months ago that he would sell him a pad of prescription blanks for $20.00, thereby enabling Brown thereafter to write out his own prescriptions. After the man had given him instructions in regard to how the prescriptions should be written out, Brown paid him the sum of $20.00 and received a pad of the prescription blanks, which apparently had been stolen from the office of a Minneapolis physician. According to Brown's statement, on the first occasion that he made out a prescription for dexedrine he paid a man he met on Hennepin Avenue to take the prescription into the drug store and have it filled. No difficulty was experienced at this time, however, and therefore Brown subsequently entered various drug stores in Minneapolis and obtained dexedrine by the same means.

Brown, who has no medical training, admitted in his statement that he has forged approximately fifty prescriptions in the past year in order to obtain dexedrine and dexamil. He also stated that he took from ten to forty of these tablets per day, the amount usually varying according to the number that he had in his possession. When asked why he used dexedrine and dexamil Brown replied that he started taking these drugs in order to quit drinking and he accomplished his purpose but ended up taking drugs instead of liquor. He also admitted that after he had obtained a large number of tablets by means of forged prescriptions he would put the pills into a bona fide container, which formerly contained medication that had been prescribed for him for a genuine ailment by a physician. His actions in this regard were for the purpose of confusing the authorities, Brown added, in the event that he should ever be arrested. Since 1957 Brown's occupation has been that of a window cleaner and he holds no license to practice any form of healing in the State of Minnesota.

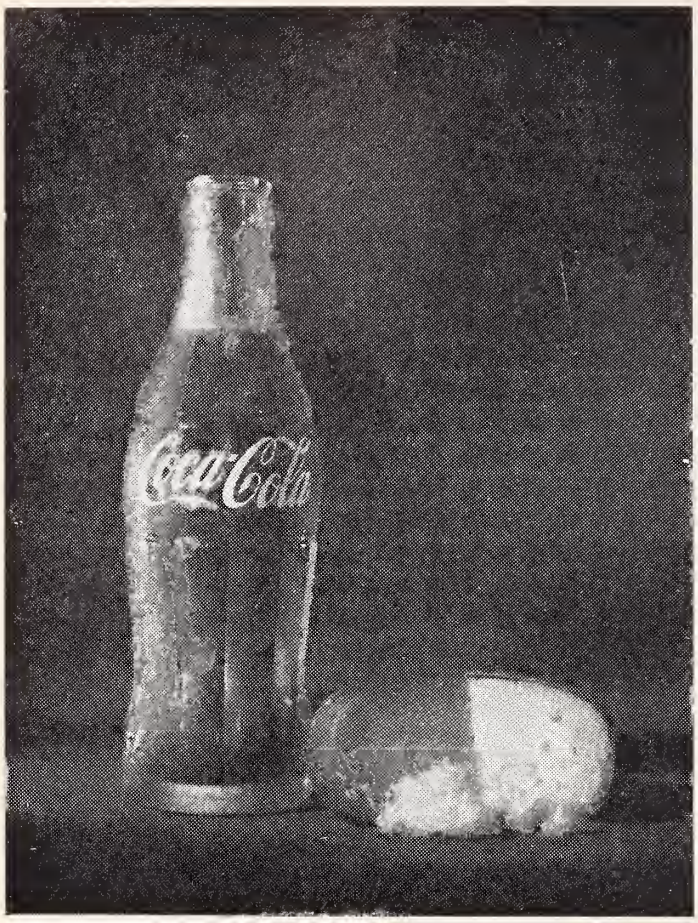
Re: State of Minnesota -vs- Richard H. Parker
Re: State of Minnesota -vs- June Morgan Dillon

On February 1st, 1963 Richard H. Parker, 34, 1618 Fremont Ave. N., Minneapolis was sentenced by the Hon. Thomas L. Bergin, Judge of the District Court of Hennepin County, to serve a term of not to exceed four years in the State Prison at Stillwater, Minnesota. On the same date the defendant had been found guilty of the crime of abortion by a jury in Judge Bergin's court. The defendant June Morgan Dillon, 29, 1509 Second Ave. S., Minneapolis had previously been found guilty of the same crime by a jury on December 5th, 1962 in the court of the Hon. D. E. LaBelle, Judge of the District Court of Hennepin County. Judge LaBelle ordered a pre-sentence investigation of the defendant Dillon and on January 31st, 1963 sentenced her to a term of not to exceed four years in the State Reformatory for Women at Shakopee, Minnesota, the execution of the sentence being stayed for a period of four years, however, and the defendant placed on probation for the same period of time.

The defendants were arrested following the hospitalization of a 32-year-old Crystal, Minnesota woman at a Minneapolis hospital after she had expelled a fetus on October 4th, 1962. A joint investigation by Minneapolis police and the Minnesota State Board of Medical Examiners disclosed that after the woman learned of her pregnancy in August 1962 she contacted Parker, who assured her he could arrange for an abortion for $300.00 He later reduced the price to $100.00, which is the sum that was actually paid to the defendant Dillon prior to her first abortion attempt by inserting a catheter on August 31, 1962. The patient remained pregnant, however, so Mrs. Dillon found it necessary to repeat the procedure on September 26th. On both occasions the defendant Parker drove the patient and Mrs. Dillon in his automobile to a room which he had rented at Portland Avenue South and 35th Street in Minneapolis, where the abortion was performed.

During the course of the investigation it was learned that the defendant Parker was on probation, having been convicted of the crime of breach of the peace on August 27th, 1962 in the court of the Hon. Donald T. Barbeau, Judge of Minneapolis Municipal Court, who sentenced Parker to a ninety-day workhouse term, stayed the execution of the sentence for one year and placed him on probation for the same period of time. Because of Parker's activities as described in the preceding paragraph, Judge Barbeau on October 8th, 1962 revoked the defendant's probation and ordered him to serve his sentence in the Minneapolis Workhouse. Neither of the defendants has any medical training whatsoever, nor do they hold any type of license to practice healing in the State of Minnesota.

Minnesota State Board of Medical Examiners
J. P. Medelman, M.D., Secy.



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The Blue Shield

HEALTH CARE ISN'T CHEAP

(As health care costs rise, Blue Shield and Blue Cross plans throughout the country have come more and more under public scrutiny. Here's an illuminating editorial from *The Detroit News* that comments on a wide range of challenges to the "Blues," including public control, insurance commissions, rising rates as well as medical care for the aged. We believe it to be of interest to physicians in Minnesota — Blue Shield of Minnesota.)

The story itself — a national magazine piece on Blue Cross rates — is calm and thoughtful. But the big print title is a rouser: "From $9 a Year to $150."

Here in miniature is the nationwide pattern for public controversy on Blue Cross and Blue Shield rates: Yell first, then think.

Union spokesmen spout sparks when the Blue Cross-Blue Shield request a rate increase. Angry subscribers plead impoverishment. The insurance commissioner frowns, pronounces his patience at an end and convokes hearings at which critics denounce the Blues, hospitals and doctors as profiteers and/or thieves.

The noise subsides. After suitable delay and meditation, the commissioner then grants the Blues three-fourths of their request, with a stern warning to mend their ways. Two years later the show is repeated.

Why all the heartburn? The Blues are nonprofit, paying out 95 cents in health care for every subscriber dollar — far more than any commercial company. Their 5 percent administrative cost is unimpeachably frugal.

When they ask for a rate boost, they have no trouble demonstrating, once the shouting subsides, that outgo does indeed exceed income, that the alternative to a rate boost is bankruptcy — which must not happen, all agree, for the public stake in the Blues is too great. And surely a system which enrolls 40 percent of the state's population must have some virtues. Yet everyone's angry. Why?

For one thing, anything that affects 40 percent of the state's wallets all at once, creates a stir.

And the rates are high — not painfully so for many, and not at all for those whose employers pay part or all — but steep nonetheless for pensioners and low-income families, even though the rates they pay do not cover the cost of the care they receive as a group.

Blue Cross-Blue Shield rates no longer reflect the "pennies a day" concept which first won them public affection — and to which the public fondly clings in an age when medical advances and medical economics make it obsolete. No system can finance good, modern medical care on pennies a day — not even Mr. Kennedy's shamelessly oversold social security plan.

Over the years, the Blues have expanded their benefits toward their goal of truly comprehensive health care. Because they have come close enough to have fostered the public notion that this is what they should be, they reap resentment when a subscriber must pay, himself, for items not yet covered.

* * *

People don't like to be sick They don't like to think about being sick. And they don't like to pay for being sick, case by case or in advance. They can bring themselves to recognize the prudence of prepayment and pooling of risks, but they don't have to like it — or the people they pay it to.

It may be this which helps so many to believe that rates keep rising, not because of legitimate increases in the cost and number of services used by subscribers who need them, but because the doctors and hospitals are somehow using the Blue plans to enrich themselves.

At every rate hearing the rafters ring to stories of alleged overcharges, unneeded treatments, payments for services not performed, overlong or unnecessary hospital stays. The Blues won't control abuse, runs the theme, because the doctors and hospitals run them for their own advantage.

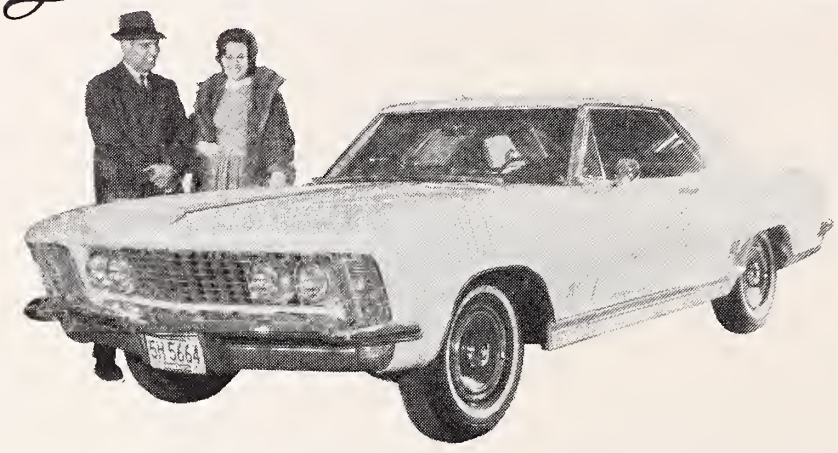
In a sense they do. Both were created by doctors and hospitals to make possible prepayment of medical costs, a result of Depression experience when many patients could not pay their bills. In that sense they are self-serving, for they reduce nonpayment. In structure both are still essentially agents for the doctors and hospitals.

Yet the Blues encompass a large measure of public service and obligation, for these, ideally, are their parent groups' reason for being — despite the cynics' sneers — and the Blues are their agents to help render that service. Public representation on their boards; their tax-exempt status — and state regulation of their rates — are tied to their public service role.

Continued

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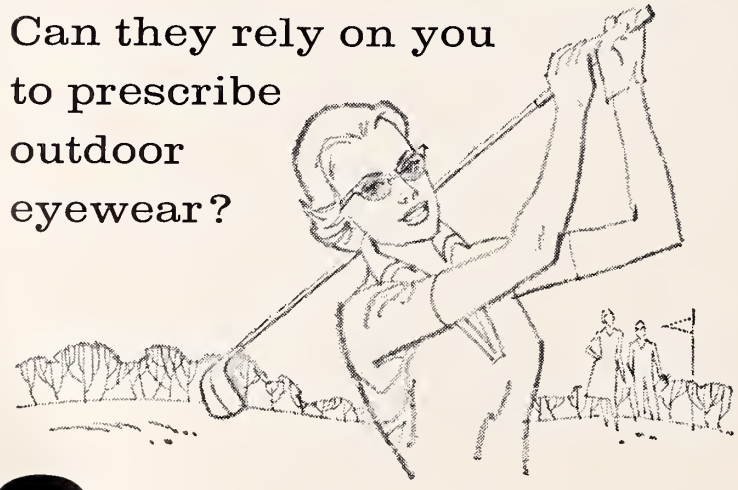
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The public was and is free to buy health care protection wherever the best value seemed offered. Surely the Blues have been a boon to the public; why else their success and importance? So well have they served it that the public has come to think of the Blues as rightfully its own.

Hence the demand that the Blues police their "parents." Some of this they have always done, for the doctors and hospitals have a stake in the fiscal and moral integrity of their prepayment plans. But critics argue that the Blues cannot curb abuse with vigor enough as long as the doctors and hospitals dominate them. Thus their call for more public representation, or even public control.

But would public control really find and squelch enough abuse and misuse, as the critics imply, to stem the rising rate tide? Did that much exist, would not some public member, at least, have denounced it by now, most explicitly?

The Blues are under public control in some states. Rates rise there, too

Some of the horror stories are no doubt true. There must be an occasional doctor not averse to an unearned buck, as there are patients of like conscience, or unionists, politicians or you-name-it. What then?

The Blues ride herd pretty well on outright fraud or flagrant misuse. But many cases someone might question involve second-guessing a doctor's professional judgment. "Iffy" questions abound in medicine; it's hardly unethical for a doctor — or his patient — to prefer being safe to sorry, when in real doubt. Case review has its place, but it will accomplish no fiscal miracle.

Nor will all the other sundry prescriptions written for the Blues. Not all the critics are demagogs, of course. Responsible people talk of better audits, cost controls, payment formulas — all very complex matters and possible roads to savings and better service, if they are right. It's possible.

The Blues are not without fault. Too timid, perhaps, or too complacent, they have not always moved as fast as they might, as hard as they could, to tighten controls, to find better ways, to keep better track. In recent years they've done more and pushed harder. Critics do have their uses.

But be the responsible critics' proposals right or wrong, none has claimed that his magic will wipe away the need for rate increases. Indeed, the prediction runs the other way. Health care costs will continue to rise, whatever is done, for the same valid reasons cited by the managers of the Blues and derided by the demagogs: Justifiable rises in hospital costs and increasing use by subscribers of service they need.

Were the Blues, in fact, to further extend benefits and take on the job of protecting more low-income people, as urged by the social gospel people, its rates would fly higher yet.

Which is not to say that these things should not be done. But for Blue Cross-Blue Shield, it's first things first. They are still in the woods, for getting higher rates to stave off starvation only adds to the competitive problem.

The Blues have carried many thousands of low-income families and retirees at less than the cost of the services they use. To have done otherwise would have priced the service beyond the reach of many. The subsidy comes, of course, from the rates paid by younger, healthier and (at least by comparison) wealthier subscribers.

Commercial insurance firms, with no such "social responsibility" load, find it easier to underbid the Blues for prime low-risk groups each time Blue rates go up. The trap is self-tightening; the more young subscribers they lose, the more they must load the rates on the remaining young folks to support care for the elderly, who can go nowhere else — and the more young folks they then lose to commercial insurance.

On the solution to medical care for the aging, then, may turn the future of Blue-Cross - Blue-Shield. More of that another day.

In Memoriam

MONTE C. PIPER

Dr. Monte C. Piper, 80, former member of the Mayo Clinic staff at Rochester, died February 15 at LaCanada, California. He was born at Garden City, Minnesota and received his degree of doctor of medicine from the University of Minnesota.

He was a former president of the Olmsted-Houston-Fillmore-Dodge County Medical Society (now the Zumbro Valley Medical Society), and a 50 Club member of that society and the Minnesota State Medical Association, and a member of the American Medical Association, the Alumni Association of the Mayo Foundation, the Society of the Sigma Xi and the Alpha Kappa Kappa professional medical fraternity. In 1951 the Board of Regents of the University of Minnesota conferred on him a certificate of merit as a token of the appreciation for his many years of splendid service given to the University.

He is survived by his wife and a daughter.

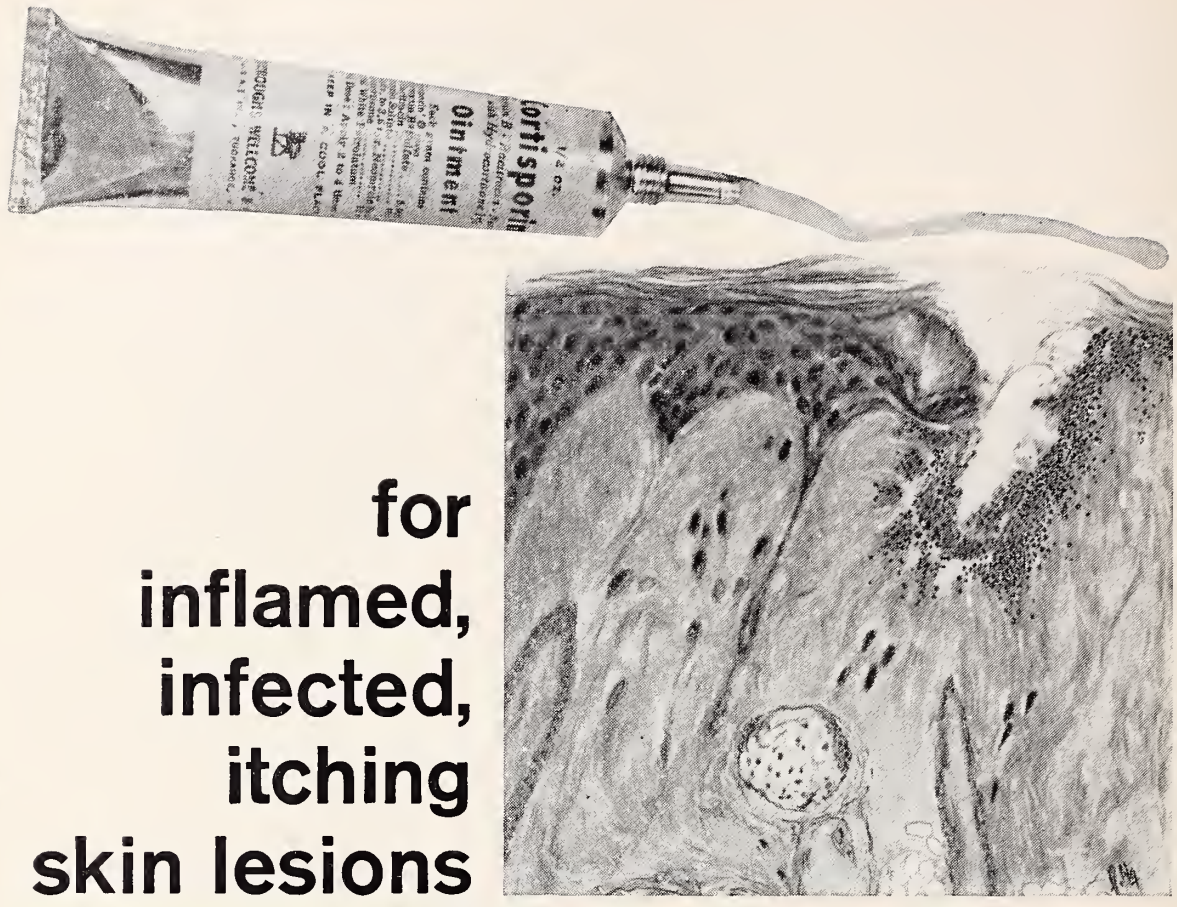
ORVAL L. McHAFFIE

Dr. Orval L. McHaffie, 68, founder of the West Duluth Clinic and Duluth physician, died February 8. He was born at Grand Forks, North Dakota and received his degree in medicine from the Northwestern University College of Medicine.

He was a member of the staffs of St. Luke's, St. Mary's and Miller Memorial hospitals and a former chief of surgery and chief of staff at St. Luke's. Dr. McHaffie was chief surgeon of the Duluth Missabe & Iron Range Railway Co. and district medical officer of the Duluth, Winnipeg and Pacific Railway. He was a past president of the Duluth Surgical Society and the St. Louis County Medical Society.

Dr. McHaffie was a member of the Duluth Surgical Society, St. Louis County Medical Society, Minnesota State Medical Association, American Medical Association, Scottish Rite Bodies, a Noble of Aad Temple, Shrine, and a member of Euclid Masonic Lodge.

He is survived by his wife, a son, and two daughters.



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Meetings and Announcements

APRIL

American College of Surgeons Sectional Meeting, April 25-27, Toronto, Ontario, Royal York Hotel. Contact: American College of Surgeons, Chicago.

American College of Surgeons Seventh Postgraduate Course in Trauma, April 24-27, John B. Murphy Auditorium, Chicago. Contact: Dr. John J. Fahey, 1791 Howard Street, Chicago.

Medical College of Virginia Course "Expended Surgery of the Nasal Septum" April 28-May 1, Medical College of Virginia, Richmond. Contact: Dr. Kinloch Nelson, Medical College of Virginia, Richmond.

Harvard Medical School postgraduate course "The Medical Care of the Adolescent", April 29-May 3, Children's Hospital Medical Center, Boston. Contact: Dean; Harvard Medical School; Boston.

Department of Defense Aerospace Medical Association Meeting, Statler-Hilton Hotel, Los Angeles, April 29-May 2. Contact: Department of Defense; Office of Public Affairs, Washington 25, D.C.

MAY

MINNESOTA STATE MEDICAL ASSOCIATION Annual Meeting, May 20-22, Duluth, Contact: Harold W. Brunn, Exec. Secy., 496 Lowry Medical Arts Bldg., St. Paul.

University of Colorado Medical School postgraduate course "Thirteenth Annual Intern-Resident Clinics" May 23-24 in Denver. Contact: University.

University of Iowa postgraduate conference "Iowa Eye Association", May 3-4, Contact: John Gius, M. D.; College of Medicine; Iowa City, Iowa.

American Thoracic Society Meeting, May 13-15, Denver, Colorado, in conjunction with the 59th annual meeting of the National Tuberculosis Association. Contact: National Association, 1790 Broadway, New York.

Minnesota Heart Association "Nutrition Symposium" May 9-10, Minneapolis. Contact: Robert Hohman, Heart Assn. St. Paul.

Fifteenth Annual Clinical Conference Chicago Ophthalmological Society, May 24-25, Drake Hotel, Chicago. Contact: Charles Barrett, M.D.; 636 Church Street; Evanston, Illinois.

National League for Nursing Convention, May 13-17, Atlantic City, New Jersey, Contact: Sara Kelley, 10 Columbus Circle, New York.

Annual Spring Meeting of Minnesota Society of Medical Technologists, Viking Motel, Alexandria, Minn. May 17-18. Contact: Sister Mary Felix, Our Lady of Mercy Hospital, Alexandria.

Medical Library Association Conference, May 30-June 3, Philadelphia, Pa. Contact: Medical Library Association, 919 No. Michigan, Chicago.

Annual Meeting of Student American Medical Association, Sherman House, May 2-5, Chicago. Contact: Association, 333 North Michigan Ave., Chicago.

Connecticut Postgraduate Anesthesia Seminar; May 10-11; Hunt Memorial Building; Contact: David Little, Jr., M.D.; 125 Walbridge Road; West Hartford, Connecticut.

American College of Physicians Postgraduate Course, May 20-24, "Physiological Aspects of Cardiopulmonary Disease" Indiana University Medical Center, Indianapolis, Ind.

JUNE

American College of Chest Physicians Annual Meeting, Ambassador Hotel, Atlantic City, June 13-17. Contact: Murray Kornfeld; 112 East Chestnut; Chicago.

AMA Annual Meeting, June 16-20, Convention Hall, Atlantic City, Contact: AMA, Chicago.

ANNOUNCEMENTS

American Geriatrics Society announced renewal of three $1800 grants for the study of the medical problems of the aged. Application for this Lederle Residency Supplement should be addressed to the Chairman, Residents and Interns Committee, American Geriatrics Society, 10 Columbus Circle, New York. Deadline is May 20.

* * *

Applications for certification in the American Board of Obstetrics and Gynecology must be submitted by July 1, accompanied by current duplicate lists of patient dismissals for the preceding twelve months. Contact: Robert Faulkner, M.D., American Board of Obstetrics and Gynecology; 2105 Adelbert Road; Cleveland.

* * *

1963 AAPS Essay Contest for High School Students. Participants will have the following choice of topics: "The Advantages of Private Medical Care" or "The Advantages of the American Free Enterprise System over Communism." National prizes of $2,675 will be offered with the first prize being $1000. Write: Association of American Physicians & Surgeons; 185 North Wabash Avenue; Chicago or Dr. James Cosgriff at Olivia for information.

* * *

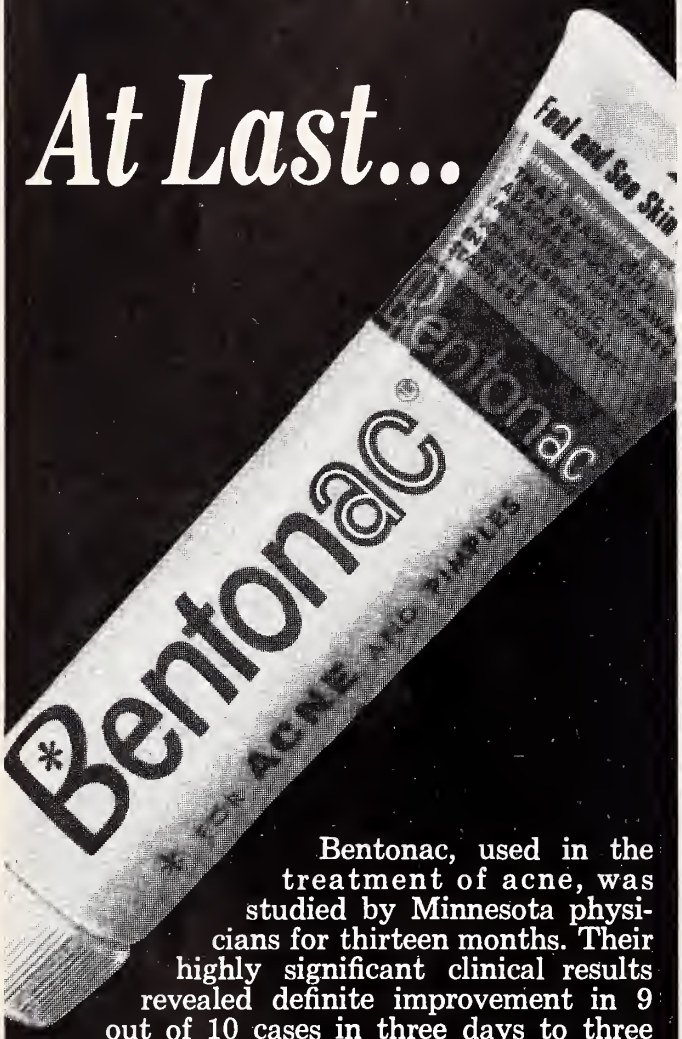
University of Minnesota medical continuation courses: April 29-May 1, Ophthalmology, May 16-18 Surgery, May 27-29 Psychiatry, June 3-5 Anesthesiology. For further information write 1342 Mayo Memorial, University of Minnesota, Minneapolis.

* * *

Next scheduled examination (Part II) oral and clinical of the American Board of Obstetrics and Gynecology will be held at Edgewater Beach Hotel, Chicago, April 29-May 4. Notices will be sent candidate of exact time.

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Physician's Diary

Doctors Theodore H. Sweetser, Sr., Theodore H. Sweetser, Jr., Stanley Waslowski, Willis Thompson, Eldon Berglund, E. Harvey O'Phelan and **Tague C. Chisholm** were recently honored for their work on exstrophy of the bladder. The American College of Surgeons has cited a documentary movie made by the group.

* * *

Dr. Edward Starr Judd, Mayo Clinic, was chosen president-elect of the Central Surgical Association at its annual meeting. Dr. Judd will take office in 1964.

* * *

Special commendation from the Veterans Administration, Washington D.C. for his work in building up the hospital laboratory and subsequent research in bacteriology and infectious diseases has been received by **Dr. Wendell H. Hall,** chief of medical service at Fort Snelling Veterans hospital.

* * *

Dr. Wallace D. Armstrong, head of the University of Minnesota's department of physiological chemistry, will serve as an expert witness before the Irish High Court in Dublin, Ireland in a trial involving the fluoridation of drinking water.

* * *

Dr. John F. Briggs, St. Paul, was awarded the honor of "Commander of the Order of Cedars", one of the highest honors awarded by the Government of Lebanon.

* * *

Special speakers among our doctors were: **Dr. Lothar Kaul** of Sioux Falls addressed the Southwestern Minnesota Medical Society and its Auxiliary . . . . **Dr. B. J. Cronwell** of Austin participated in a workshop on vectrocardiography at the annual meeting of the College of Cardiology in Los Angeles . . . . **Dr. Kenneth W. Teich** of Duluth addressed the National Association of Women Deans and Counselors . . . . **Dr. George Stilwell** of Mayo Clinic and president of the American Medical Writers' Association will speak at the annual meeting of the Student American Medical Association . . . . and **Dr. Khalil G. Wakim,** Mayo, will be guest speaker at the congress of the Thirteenth Middle East Medical Assembly at Beirut, Lebanon.

* * *

Dr. L. H. Klefstad of Greenbush was recently honored for outstanding civic achievement by that community, and **Dr. Eugene F. Bernstein** was awarded one of the Markle Scholarships in Academic Medicine. Dr. Bernstein is currently a resident at the University hospital.

* * *

Dr. James J. Coll has been named chief of the medical staff of St. Mary's hospital in Duluth, and **Dr. J. J. Sterner** of St. Paul has been appointed chief of Staff at Bethesda Lutheran Hospital, St. Paul; **Dr. D. H. Rolig,** vice chief of staff and **Dr. W. W. Amerongon,** secretary-treasurer.

* * *

Dr. E. D. Bayrd of Rochester spent three weeks in Sydney Hospital, Sydney, Australia as a visiting professor of medicine, and **Dr. J. Arnold Bargen,** formerly of Mayo, was elected chairman of the Council on Scientific Assembly of the American Medical Association at a recent meeting.

New Locations — Dr. Orville A. Hable will practice medicine in the Buffalo Lake Clinic . . . . **Dr. Anton J. Stifter** will join **Dr. J. J. Carrol** at Winsted in the practice of medicine . . . . **Dr. Carsten C. Seecamp** is now on the staff of the Cambridge Clinic . . . . **Doctors R. E. Thompson, R. E. Larson** and **J. M. Dobie** recently moved into their new clinic at St. Peter . . . . and **Dr. James S. Hunter, Jr.** of Rochester will practice medicine in Manhatten, Kansas.

* * *

Dr. William A. Nolen affiliated with the Litchfield Clinic has been selected to the Minnesota Surgical Society.

* * *

Dr. E. K. Rowles of Coleraine has been elected chief of the medical staff of Itasca Memorial hospital . . . . **Dr. M. J. McKenna** of Grand Rapids is vice chief and **Dr. A. V. Grinley** of Grand Rapids is secretary-treasurer.

* * *

Dr. F. B. Spieler of Pequot Lakes was recently honored by that community for the many services he has rendered in Pequot Lakes.

* * *

At the meeting of the Minnesota Dermatological Society a portrait of **Doctor Henry E. Michelson** was unveiled and will hang in the third floor corridor of Mayo Memorial Building. At this same meeting Miss Jennie Schey, R. N. was honored for her many years of work in the Out-Patient Clinics.

* * *

Dr. Jesse E. Edwards, president of the Minnesota Heart Association and **Dr. John F. Shronts,** medical director of General Mills, Inc. will hold a symposium on "Nutrition and Atherosclerosis" on May 9-10 in Minneapolis.

* * *

Dr. Glenn W. Brown of Halstad attended the Post Graduate Assembly at New Orleans recently . . . . **Dr. Willard Peterson** of Willmar took part in a special course at the Mayo Clinic recently . . . . and **Doctors Inman A. Hesla** and **Harold E. Paulus** of Austin attended a conference at the University of Iowa, College of Medicine.

* * *

New Society Officers named: **Dr. Richard E. Barnes,** Aurora, is the new president of the Range Medical Society. **Dr. Bayard T. French** of Hibbing was elected president-elect; **Dr. Charles B. Will of** International Falls, vice-president, and **Dr. Isa McPrlina** of Virginia secretary treasurer . . . . **Dr. James H. Cain** was elected president of the Park Region Medical Society . . . **Dr. Arnold Berg** of Roseau was elected president of the Red River Valley Medical Society; **Dr. Howard Wikoff** of Crookston, vice-president and **Dr. R. O. Sather** of Crookston, secretary-treasurer.



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GP — active, suburban, young general practice office seeking a new associate. New spacious office, alternating calls; early partnership for acceptable person. Hospital affiliations with Methodist and Fairview. Contact: H. J. Racer, M.D. or R. F. Simmons, M.D.; 8040 Penn Avenue So.; Bloomington.

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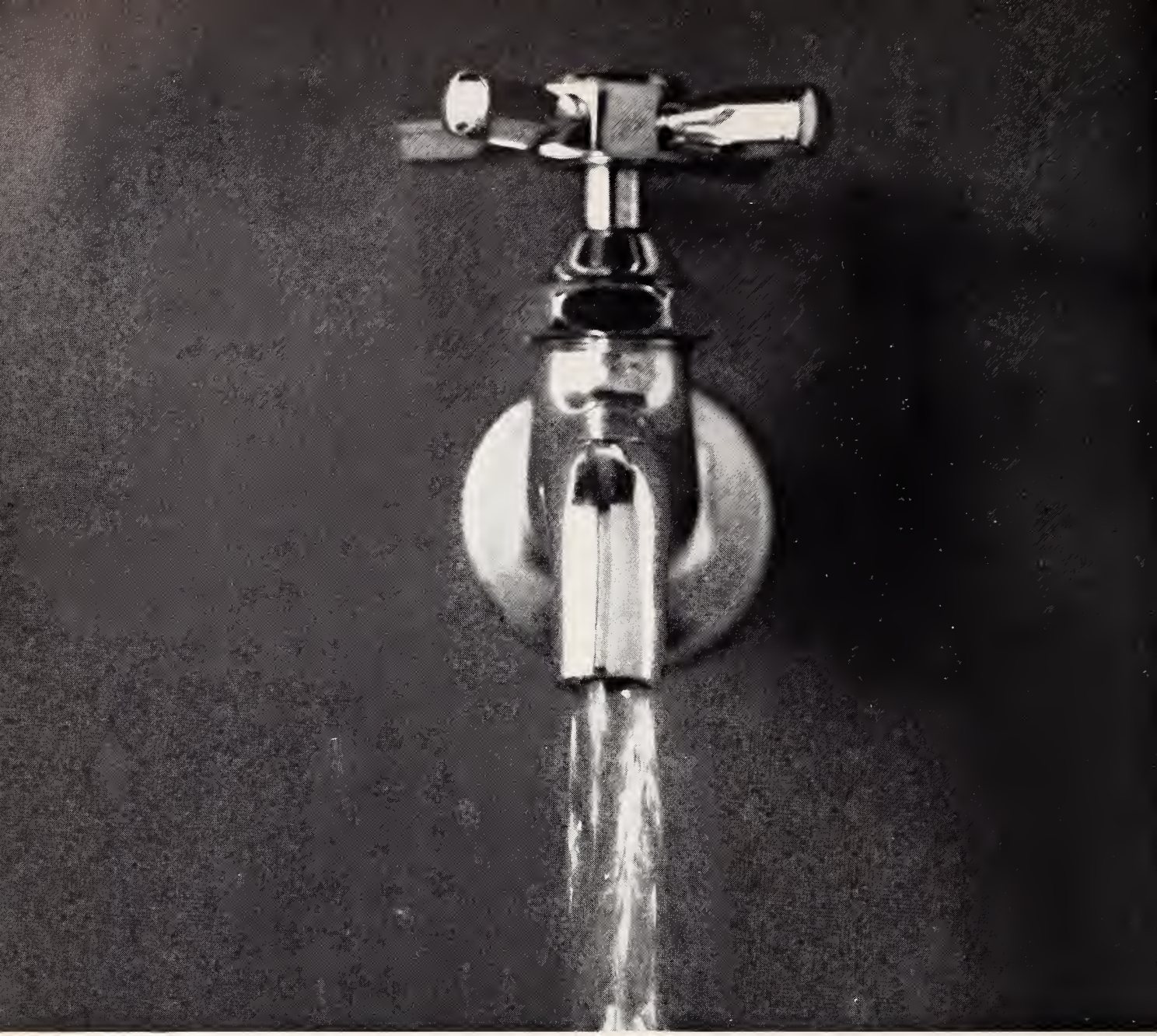
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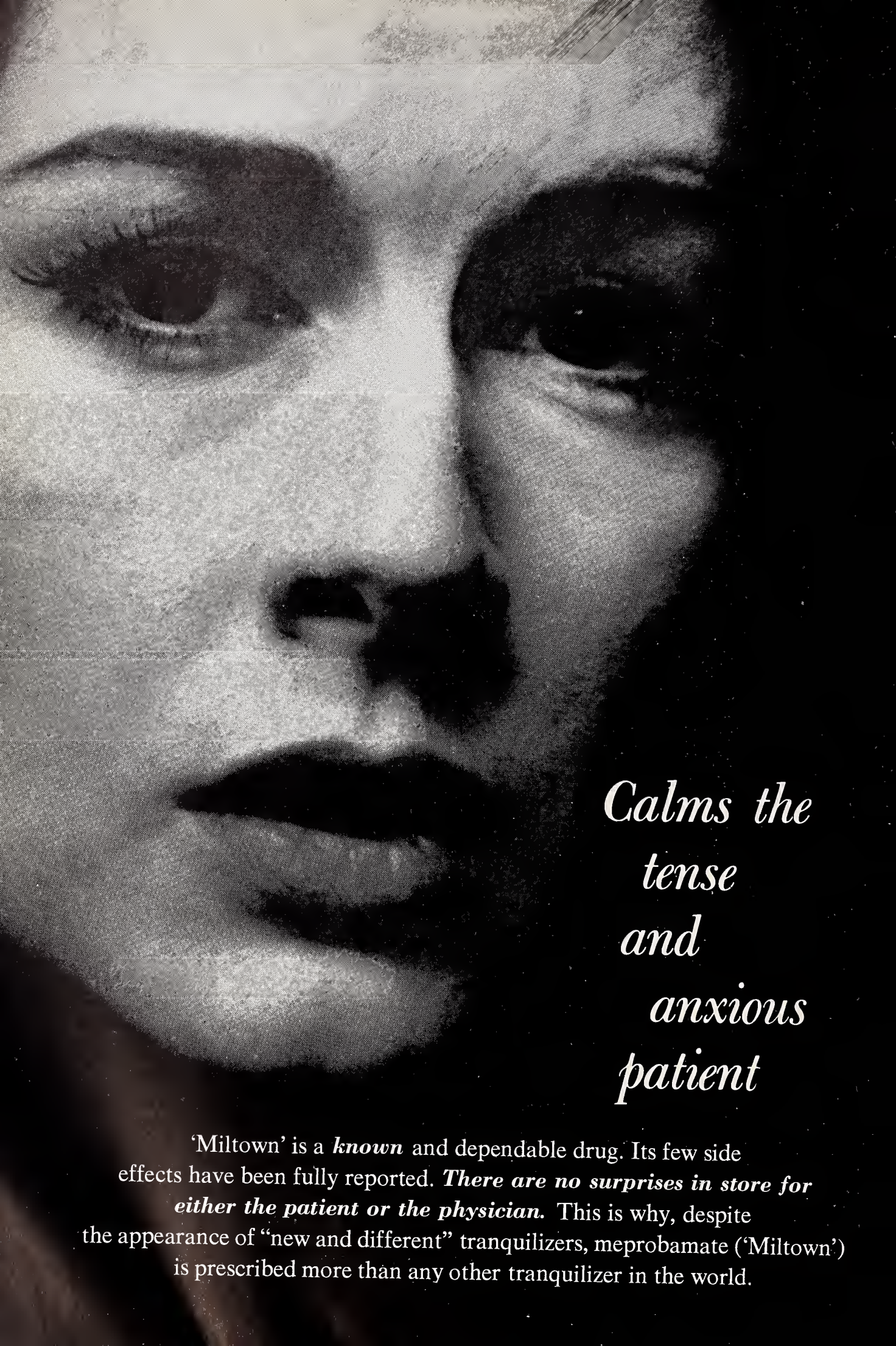
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1. Prescribing Supplements of Dietary Fluorides, Council of Dental Therapeutics, J.A.D.A., 56:591, April, 1958.
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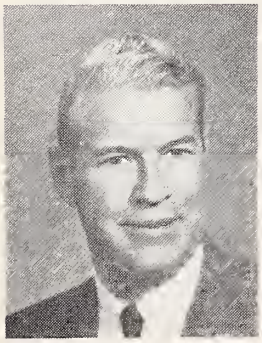
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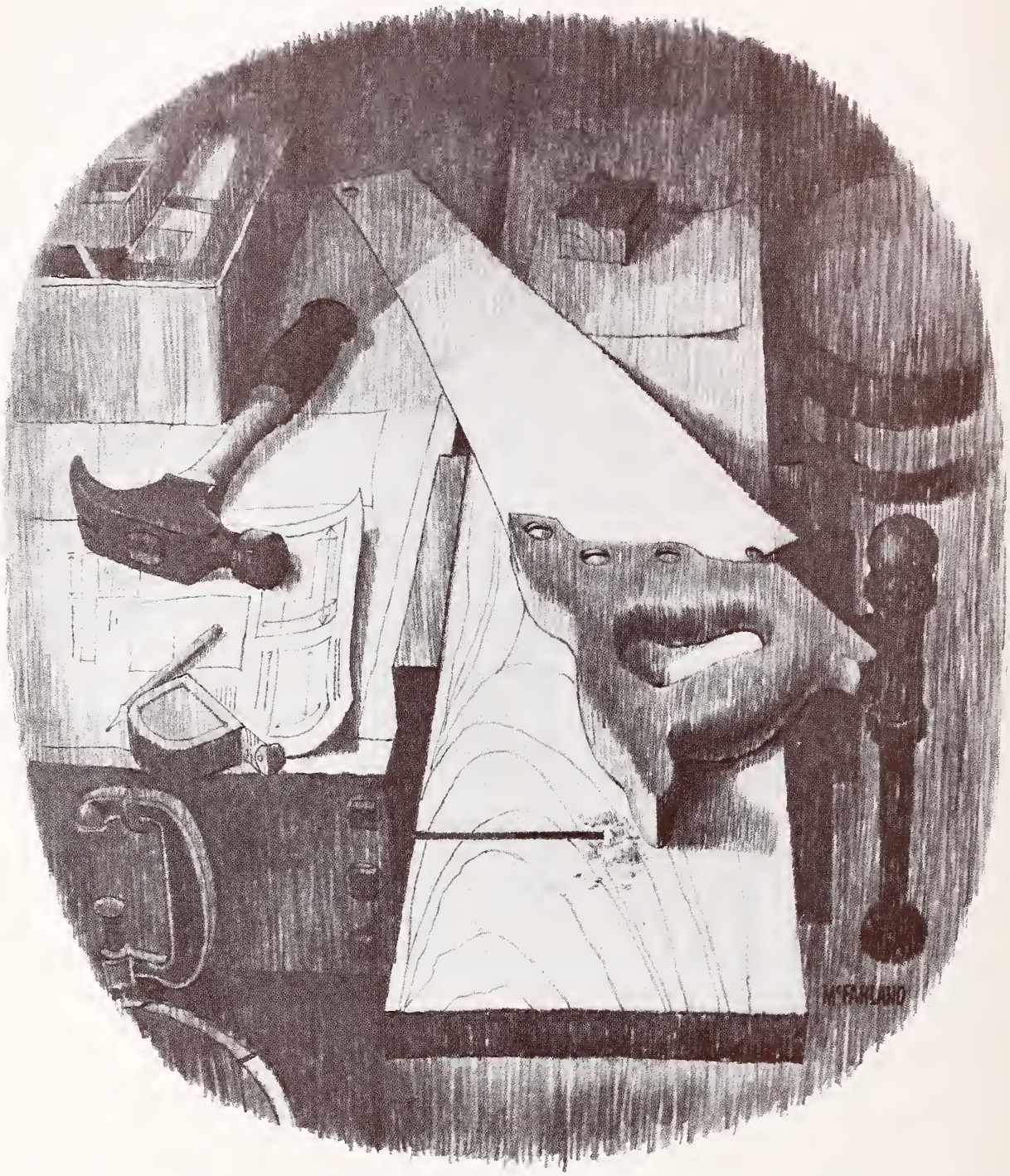
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*Schiller, I.W. and Lowell, F.C.: New England J. Med. 261:478, 1959. A. H. ROBINS CO., INC., RICHMOND 20, VIRGINIA

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REFERENCES: 1. Moeller, H.C.: Ann. New York Acad. Sc. 99:158, Feb. 28, 1962. 2. Epstein, J. H.: Am. J. Gastroent. 37:295, 1962. 3. Sun, D. C. H.: Ann. New York Acad. Sc. 99:153, Feb. 28, 1962. 4. Posey, E. L., Jr.: Am. J. Digest. Dis. 7:863, 1962. 5. Young, R., and Sun, D. C. H.: Ann. New York Acad. Sc. 99:174, Feb. 28, 1962.

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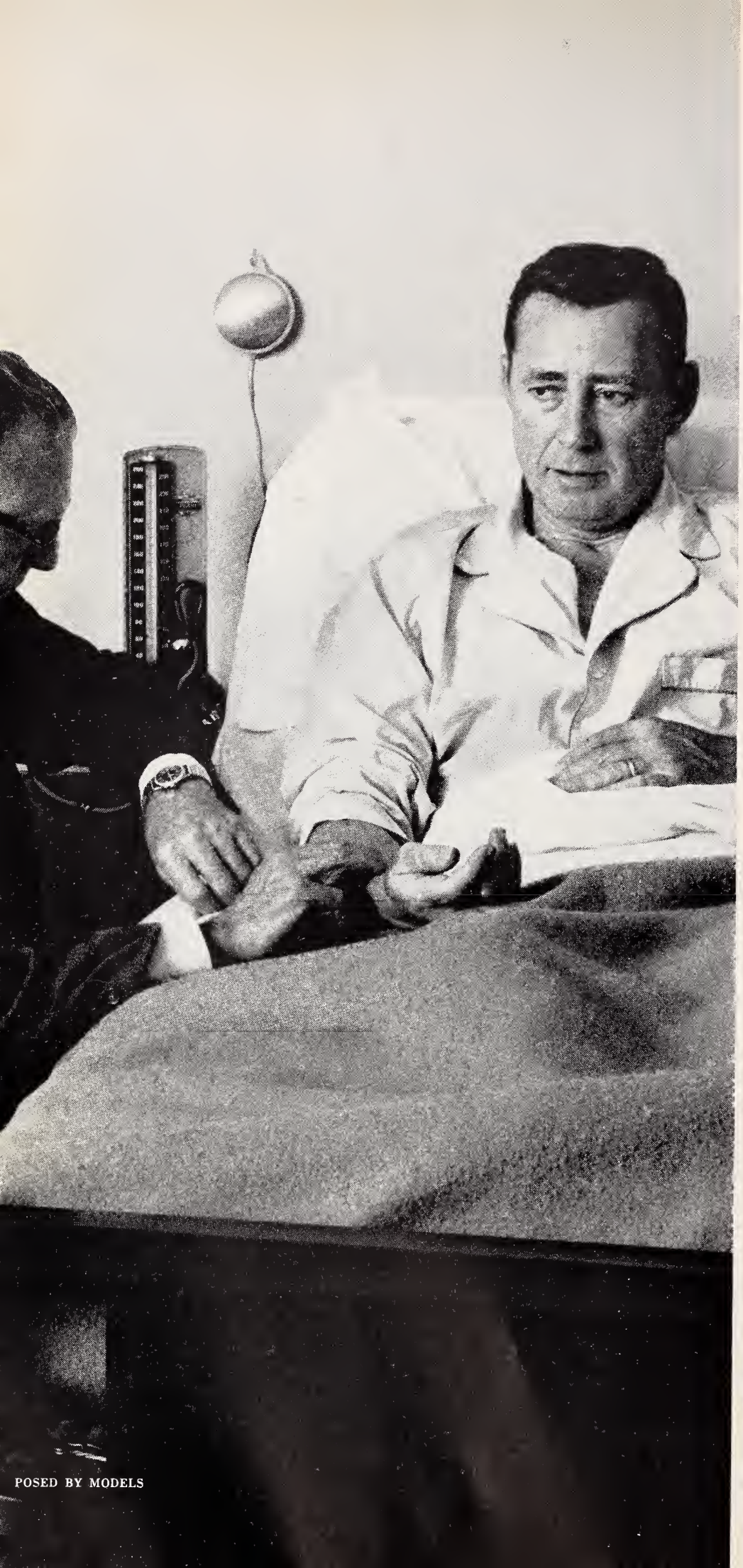
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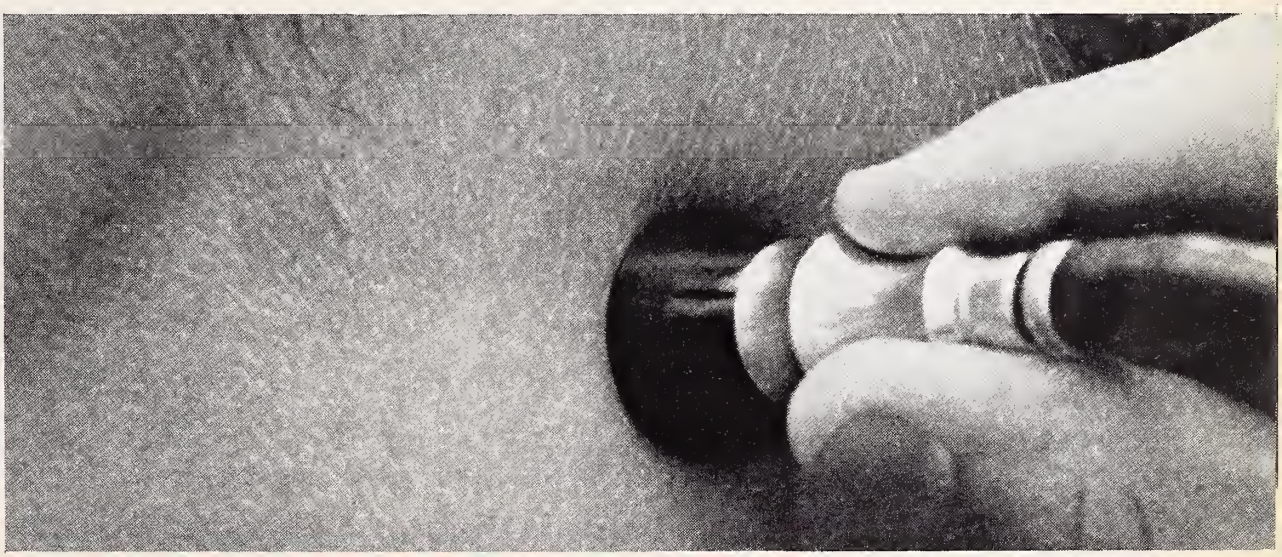
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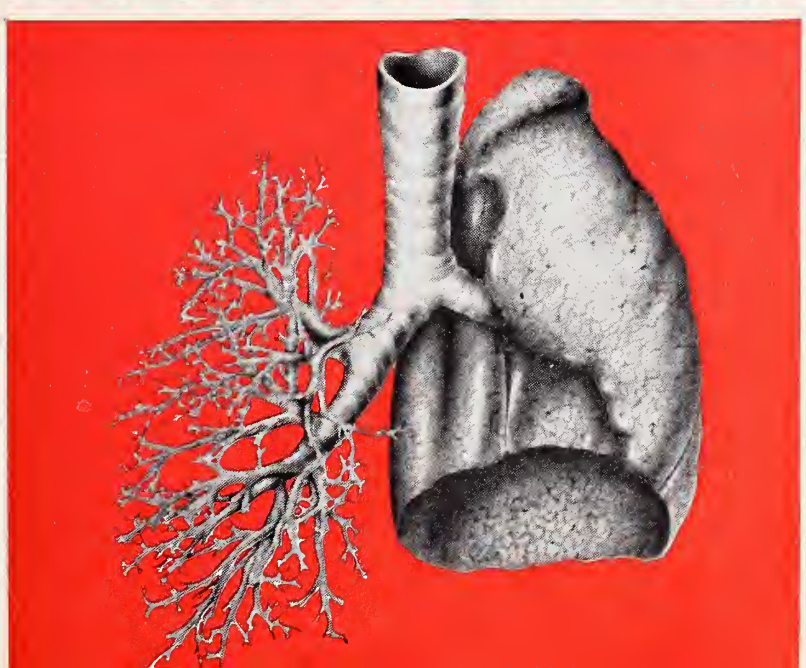
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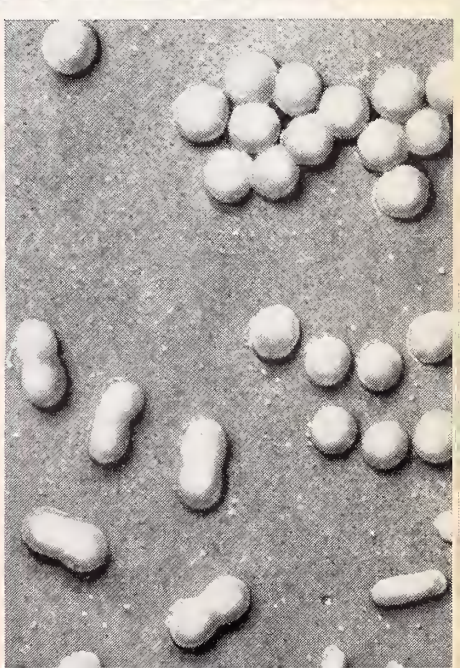
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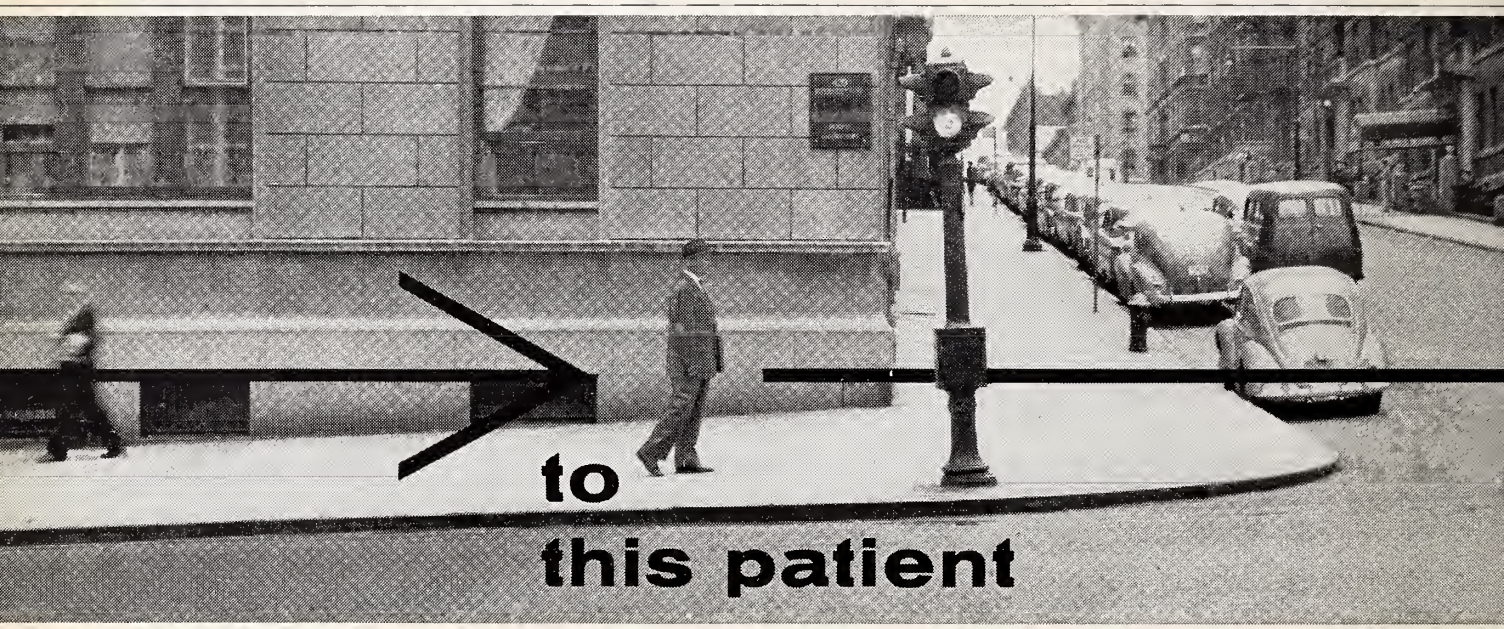


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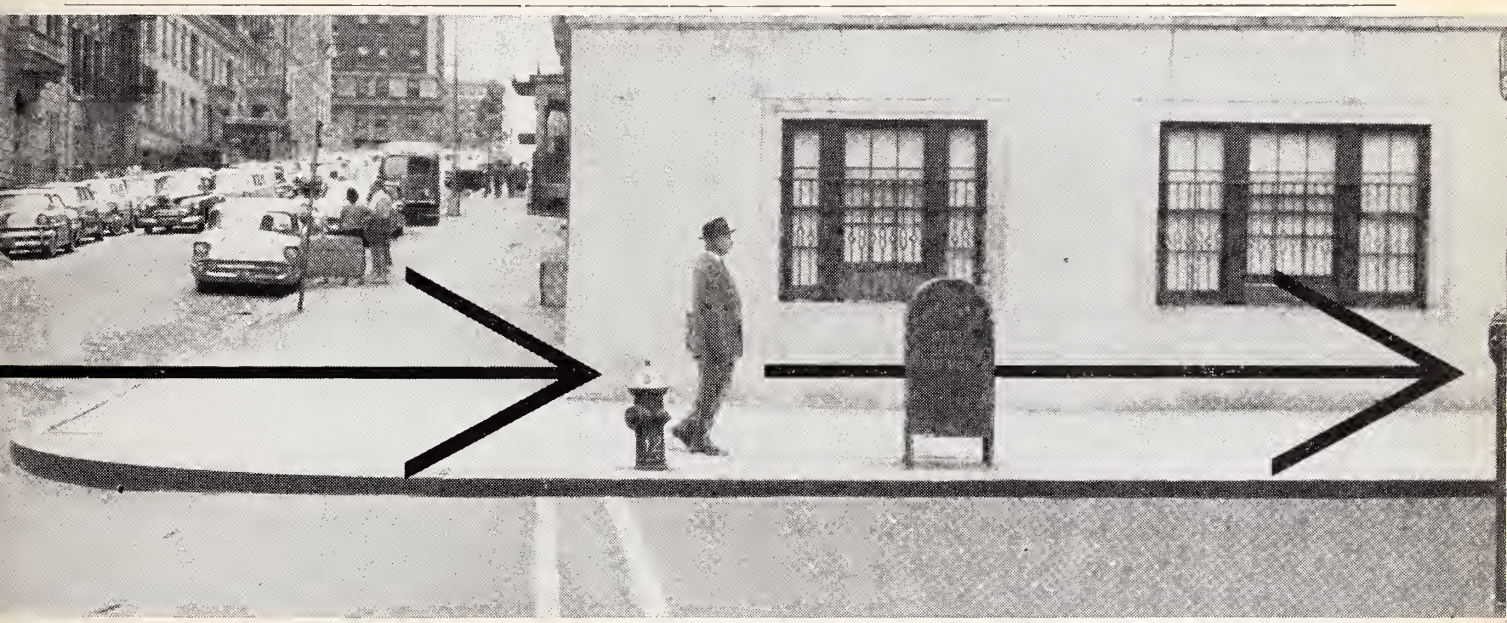
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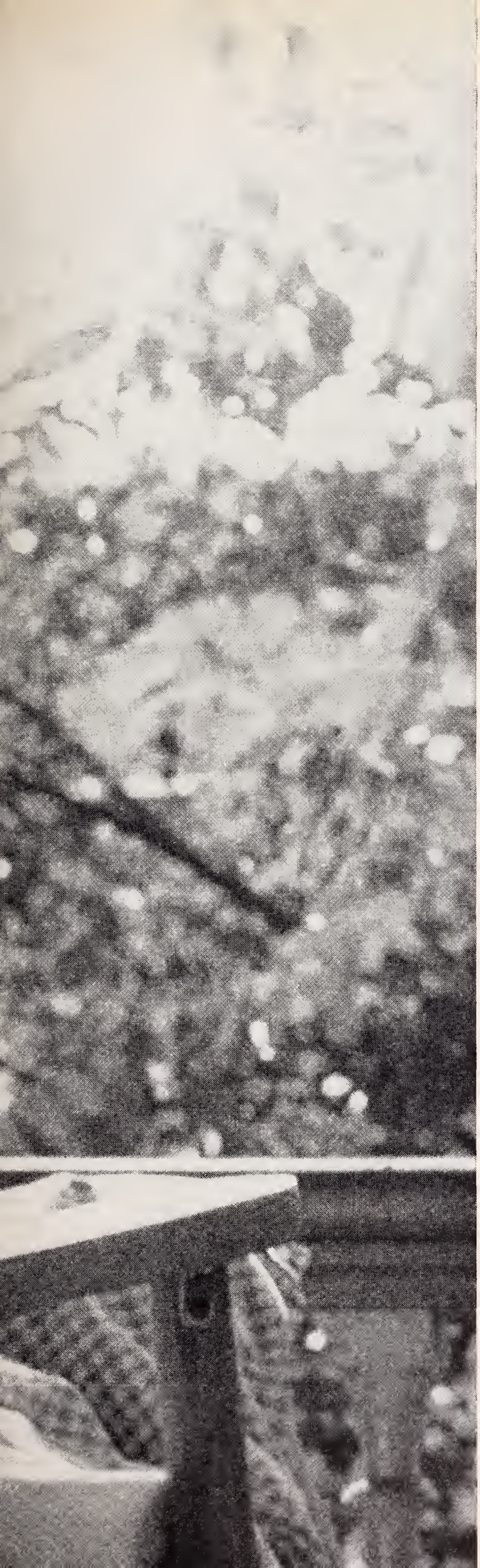
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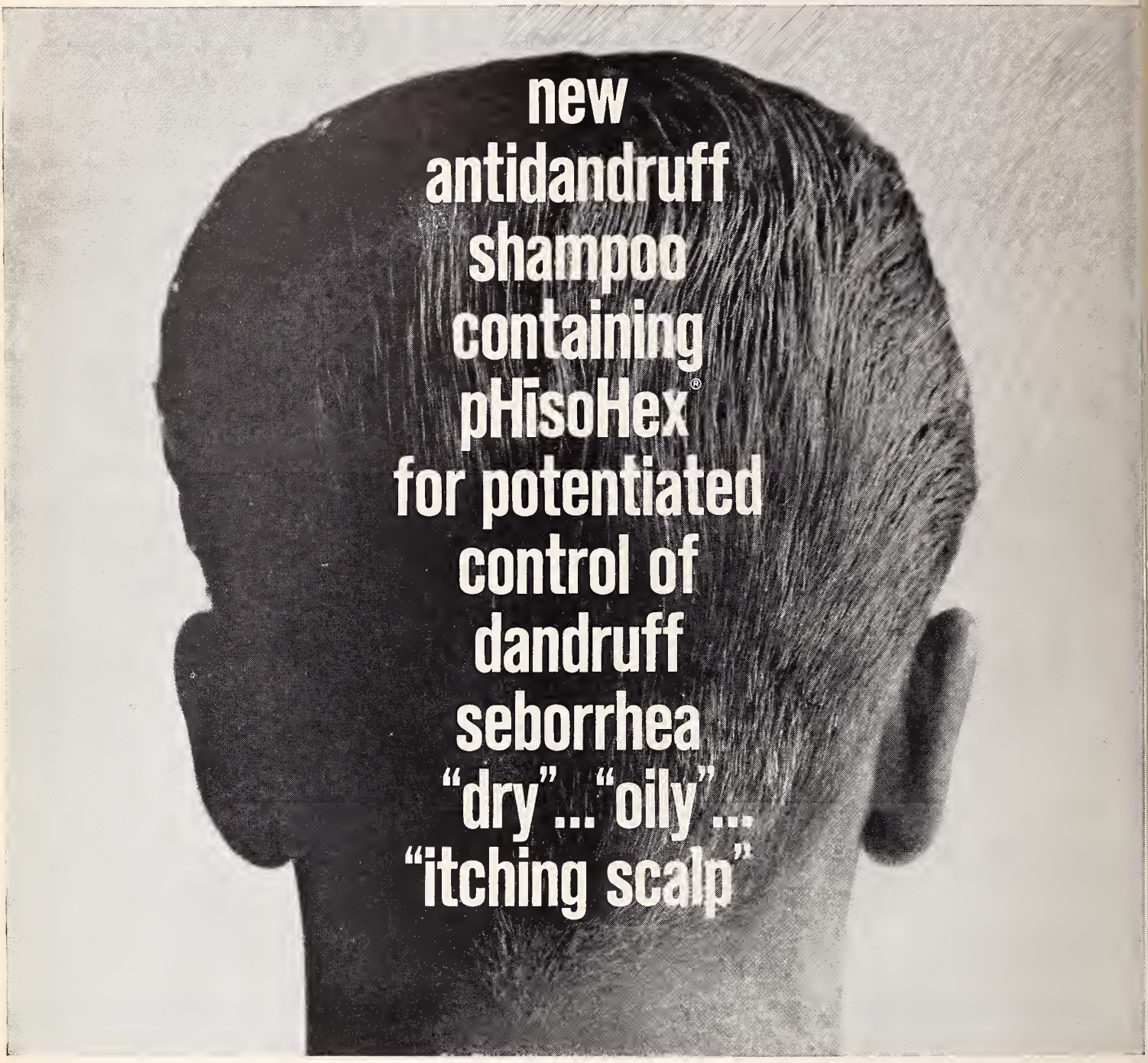
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President's Letter

The Minnesota Medical Foundation

The Minnesota Medical Foundation was founded in 1939 by a group of faculty members and graduates of the Medical School. The purpose was to establish a mechanism for the provision and encouragement of support for the Medical School from private sources.

The Foundation grew slowly at first but growth has accelerated as the Foundation has grown older and knowledge of its existence has become more widespread. The Foundation is now actually contributing to many activities for the aid of the Medical School.

These activities have included the scholarship program which was initiated in 1949 with the awarding of the first five scholarships to medical students. The number of such scholarships, usually for $500 each, has increased annually and in 1962 57 such grants having a cash value of $30,250 were made, bringing the total number of such scholarships awarded since 1949 to 322 with a worth of $166,500.

The Foundation in 1962 established a permanently endowed medical research program principally to assist younger faculty members and medical students with promising projects. In 1962 grants having a value of $7750 were made to three faculty members and four students for research in heart disease and cancer. In addition, by direct donor requests additional research awards were also made to three senior members of the faculty.

A Distinguished Teaching Award and a $1000 cash prize has been established to be awarded annually in appreciation of outstanding teaching ability. The recipient of this award is selected by vote of the faculty, alumni and student body.

Four Distinguished Service Awards paying $5000 annually to the recipient have been inaugurated and maintained. These are each sponsored in full by private donors. The recipients of these awards have been Dr. Maurice Visscher, Dr. Owen Wangensteen, Dr. Cecil Watson and Mr. Ray Amberg.

In cooperation with the University Hospitals the Foundation publishes The University of Minnesota Medical Bulletin. The Foundation provides $3,500 annually to help pay the costs of publication, and editorial and circulation management are provided by the Foundation staff.

A grant of $25,000 was made to aid in the construction of the Diehl-Hall Bio-Medical Library.

At the request of the Minnesota State Medical Association, the Foundation administers the Herman M. Johnson Memorial Emergency Loan fund which provides short term emergency loans to students. The State Association originally provided $4000 as capital for this fund and has added an additional $2000 during the past year, making a total of $6000. This fund was established in 1959 and as of March 30, 1963 a total of 360 loans had been made having a total value of $47,996.

Loans from this fund are made only to medical students and are limited to $200 and may not exceed 90 days in length. Loans are made without interest. Since the establishment of this fund there have been no losses to delinquent accounts which attests to the high quality of administration by the Executive Director of the Foundation, Mr. Eivind Hoff.

The Foundation now has over 1500 members. Administration is provided by a Board of 30 members of which a majority must be graduates of the Medical School.

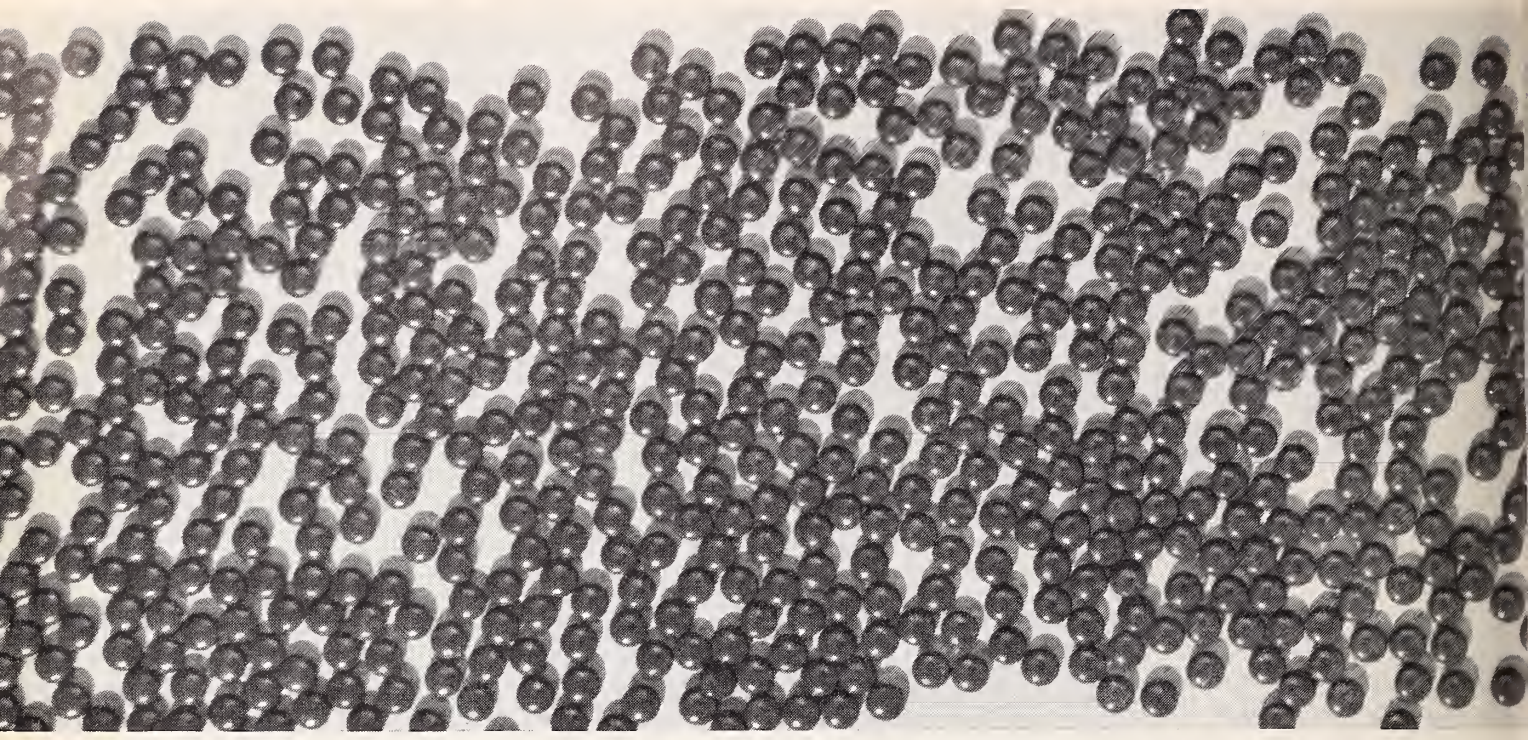
It is evident from the above that the Foundation is amply fulfilling the aims and hopes of its founder. We offer our congratulations to the Officers and Board of Directors on a task which is being well accomplished.

I hope that each physician in the state will become a member and make whatever contribution is possible to the continuation of this successful operation. I also hope that you will bring the Foundation to the attention of friends and acquaintances who might wish to make contributions to the progress of medicine and of our Medical School.

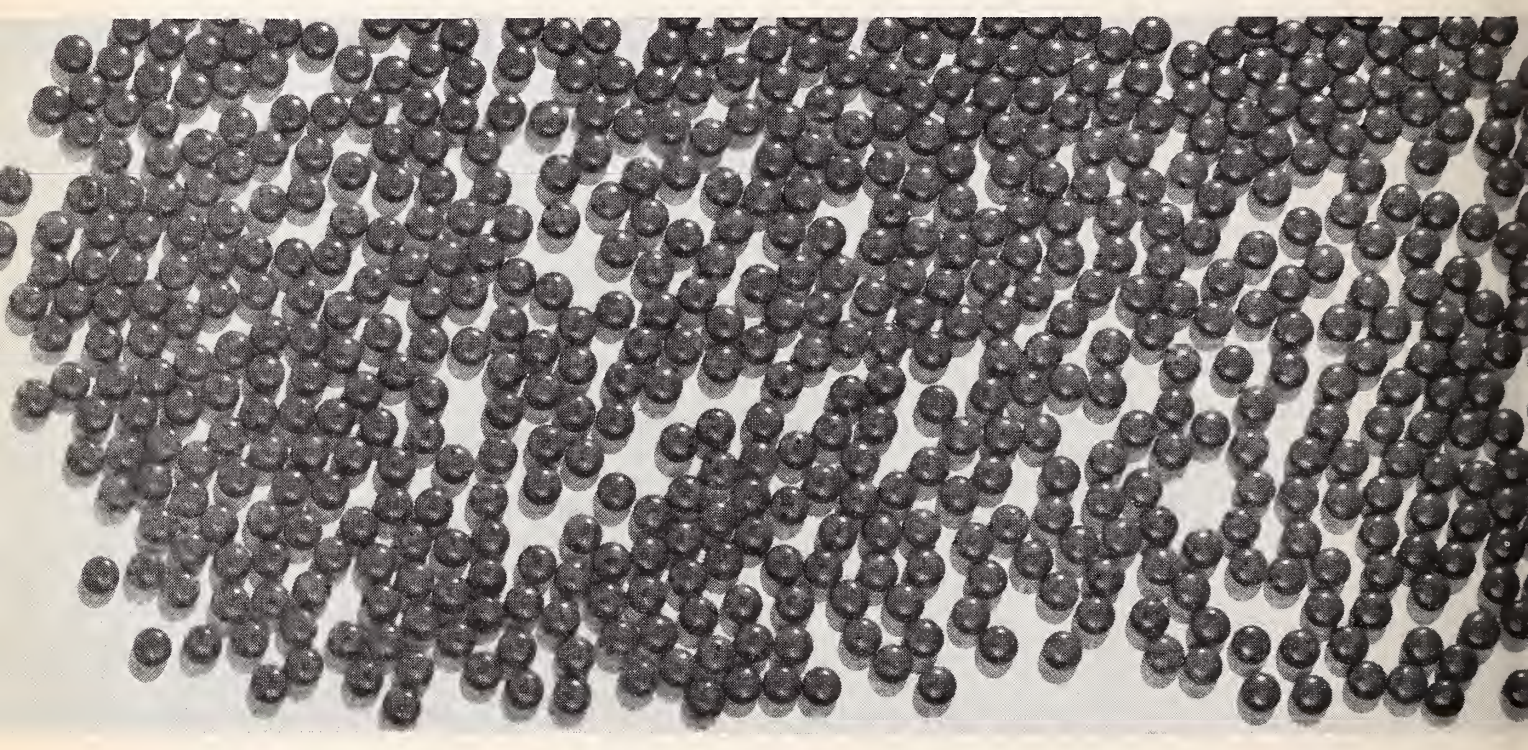


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URETEROPELVIC OBSTRUCTION

Abdominal Diagnostic Problems

DAVID P. ANDERSON, M.D.
Austin, Minnesota

THE RECOGNITION and consequent definitive treatment of congenital obstructions at or near the ureteropelvic junction are frequently delayed in both adults and children, often for many years. Intermittent complaints, often referable to the abdomen only, and a notably paucity of urinary tract findings are misleading but frequent manifestations of these anomalies [1,2]. The diagnosis may not become obvious until complete obstruction occurs or until complications such as infection or hematuria lead to an investigation of the urinary tract by pyelography.

A review of our experiences with ureteropelvic junction obstructions, as encountered in a general surgical practice, confirms the fact that these common congenital defects of the urinary tract often present difficult diagnostic problems. This report does not pretend to be statistical significance; it is intended simply to further alert physicians to the necessity for sharpened diagnostic acumen in order to recognize the acute and chronic manifestations of ureteropelvic junction obstruction in an early stage when renal parenchyma can be salvaged.

A panoramic view of the wide variety of complaints and physical findings encountered in the 20 patients included in this report emphasizes the problems of diagnosis presented by ureteropelvic obstruction.

Symptoms

Pain

Either acute or intermittent pain over a period of months or years, was the most common complaint, being recorded as a primary complaint in 16 of the 20 patients. Seven patients referred their pain to the abdomen only; five complained of flank pain or "backache," and four had a combination of abdominal and flank pain.

Gastrointestinal

The patients with abdominal pain almost invariably complained of some degree of digestive upset, varying from anorexia to vomiting, thus directing the physician's attention to the gastrointestinal tract.

Hematuria

Urinary symptoms occurred in only six of the 20 patients. Three had gross hematuria, and three had varying degrees of urgency, frequency, or distress on urination. Two of the three patients with gross hematuria and one patient with microscopic hematuria gave a history of injury, there being no obvious physical evidence of injury other than the hematuria in each instance.

Other Symptoms

Less frequent complaints included fever, malaise, weakness, diarrhea, dyspnea, and the presence of an abdominal mass. These complaints occurred only among patients with complications secondary to the ureteropelvic junction obstruction.

Physical Findings

Tenderness to fist-percussion over a costovertebral angle was the most characteristic finding on physical examination, a finding present at one time or another in 12 of the 20 patients in this survey. The flank tenderness was not always evident on repeat examinations and varied in intensity from "questionable" to "severe." The definite absence of costovertebral tenderness was noted in four patients and no comment was made as to its presence or absence in four others.

Fever was present in only five of the 20 patients.

A negative urinalysis was recorded in 13 of the 20 patients. Pyuria was present in four, and gross or significant hematuria was noted in four, one of whom also had pus in the urine.

Duration of Symptoms and Past Medical History

In seven of the 20 patients, the symptoms had been present for a few hours to less than one week. The remaining 13 had had intermittent trouble for periods varying from six months to 30 years, seven having had trouble for over five years.

Thirteen of the 20 patients, those with complaints of long duration, had been given previous medical diagnoses to explain their complaints. These diagnoses were as follows:

Pyelitis	3
Kidney colic	2
Appendicitis	2
Gallbladder trouble	2
Stomach trouble	1
Peritonitis	1
Hernia	1
Diverticulitis	1

One patient had had an appendectomy and Meckel's diverticulectomy without relief. Another had had three abdominal operations without relief.

Age

The age distribution of this group at the time of diagnosis is of more than passing interest if we keep in mind that we are discussing a congenital anomaly. Twelve of the 20 patients were over 20 years of age, and five of these were older than 60 years.

Case Reports

The first two case reports illustrate some of the diagnostic difficulties presented by uncomplicated ureteropelvic junction obstruction. The preponderance of abdominal complaints and the lack of urinary tract findings are striking.

Hydronephrosis

Case 1.

A white male, aged 60 years, was admitted in February 1960 with complaints of left abdominal pain, left flank pain, nausea and vomiting. There were no urinary complaints. Intermittent symptoms had been present for 22 years, beginning with bouts of abdominal pain, nausea and vomiting. At first the patient had trouble only two or three times a year, usually after excessive eating or indulgence in alcoholic beverages.

Twelve years before admission he had had a severe attack of abdominal pain with associated nausea and vomiting, which required hospitalization for several days. Complete studies of the gastrointestinal tract were negative. Pyelography was not done. Following this episode the patient was free of complaints until 10 days before admission in February 1960.

The physical examination was entirely negative except for very slight left flank tenderness to fist-percussion. A urinalysis showed albumin but no pus or red blood cells. The temperature was normal. An excretory urogram showed a nonfunctioning left kidney and a normal right kidney. A retrograde pyelogram showed extensive hydronephrosis and caliectasis on the left.

Surgical exploration of the left kidney confirmed the presence of extensive hydronephrosis secondary to a fibrous stricture at the ureteropelvic junction. Only a shell of renal substance remained. A nephrectomy was done, and a left adrenal cortical adenoma was removed incidentally. The patient's postoperative course was uneventful.

Case 2.

A white male, aged 7 years, was readmitted to our hospital in September 1959 complaining of left abdominal pain and vomiting. The admission diagnosis was "abdominal cyst."

The child had had many episodes of abdominal pain and vomiting for a year and a half and on several occasions had been hospitalized because of these complaints. On at least one occasion the pain was so poorly localized that a diagnosis of acute appendicitis was entertained. There were no urinary complaints at any time and the urinalysis on each admission was negative. There was no appreciable febrile reaction at any time. On one admission a flat-plate Xray of the abdomen, and also stomach and colon Xrays were normal.

In September 1959 a large, cystic, slightly tender mass filled the left abdomen. The temperature was normal. A urinalysis was negative. An excretory urogram showed a nonfunctioning left kidney with a soft tissue mass in the left abdomen.

Exploration was done through an anterior abdominal approach. There was an agenesis of the proximal ureter at the left ureteropelvic junction, which produced complete obstruction and massive hydronephrosis. The kidney parenchyma was completely destroyed. Left nephrectomy was done. The postoperative course was uncomplicated.

Perirenal Hematoma

Complications of ureteropelvic junction obstruction, such as infection and trauma, frequently serve to call attention to the urinary tract and may offer the first lead to establishment of the diagnosis. In some instances, however, ureteropelvic junction obstruction with secondary complications may present a bizarre clinical picture, as illustrated by Cases 3 and 4.

Case 3.

The patient, a white female aged 41, was admitted in January 1959 complaining of severe epigastric pain, gaseousness and abdominal distention. The symptoms developed suddenly after a hearty meal 36 hours prior to admission. There was no history of trauma.

Eight years previously, following a pregnancy, she had had subacute bacterial endocarditis, superimposed on an old rheumatic mitral valve lesion. A secondary diagnosis of cholelithiasis was made at the time of this illness. Over the intervening years she had frequently noted sharp pain of brief duration in the right abdomen and the right flank, which she attributed to the gallbladder disease. There were no urinary complaints except for mild dysuria and frequency during the two weeks immediately prior to the admission in January 1960. Three weeks before admission she had also developed a large periorbital hematoma, following a very minor bruise.

Examination revealed a large, firm, irregular, and tender mass occupying the entire upper abdomen on the right and extending through to the right flank. A urinalysis showed albumin but no pus or blood. The hemoglobin was 11.4 grams. The leucocyte count was 12,400. A single prothrombin time, on admission, was 30 seconds with a control of 12 seconds, which rapidly returned to normal with the intravenous administration of a synthetic vitamin K-1 preparation. An excretory urogram showed a nonfunctioning right kidney and a normal left kidney. There was complete obstruction to the passage of a ureteral catheter at the right ureteropelvic junction.

A right nephrectomy and an incidental cholecystectomy were performed through an anterolateral incision. Examination of the right kidney revealed complete obstruction at the ureteropelvic junction secondary to an aberrant artery to the lower pole of the kidney. There was extensive hydronephrosis and a fresh perirenal hematoma measuring one inch in thickness in some areas. The gallbladder contained numerous facetted calculi. The patient's convalescence was uneventful.

One can only speculate as to the etiology of the perirenal hematoma. The patient was quite certain that she had sustained no injury and she had taken no medication which might influence the prothrombin time. Postoperative studies gave no clues to explain the single low prothrombin time and the history of an extensive hematoma following relatively minor trauma to the periorbital area.

Perirenal Inflammation

Case 4.

A white female, aged, 73, was admitted in January 1959 in a toxic, debilitated state. The medical history was unreliable as to detail, due in part to the patient's toxicity and in part to her reluctance to complain, because of her religious beliefs. As near as could be determined she had been active and in good health until six to eight weeks before admission, when she noted anorexia, progressive weakness, dyspnea on exertion and diurnal ankle swelling. Left subcostal aching and diarrhea developed one week before admission. She had lost an estimated 30 to 40 pounds in weight.

The patient specifically denied having had any urinary symptoms. She had had recurrent episodes of left subcostal aching with vomiting of bile for over 30 years and had been told that she had gallbladder trouble.

Her temperature on the day of admission was 102.4 degrees and 103.6 degrees the following day. Her pulse was regular with a rate of 120 per minute. Marked pallor was evident. Her blood pressure was normal.

There were dullness and absent breath sounds over the lower two thirds of the left hemithorax with displacement of the heart to the right. A large, firm mass was palpable in the left abdomen extending downward eight inches below the costal margin.

The initial hemoglobin was 4.8 grams and the leucocyte count was 8,000 with 65 per cent neutrophils. A urinalysis on admission showed a grade 3 albuminuria with a packed field of white blood cells and 25 red blood cells per field. The sedimentation rate was 120 mm. per hour.

Other significant laboratory studies were as follows: Blood urea nitrogen 17.9 mgm. per cent; alkaline phosphatase 3.4 units; serum amylase 24 units; and cephalin flocculation 2 plus in 24 hours and 3 plus after 48 hours. A blood culture showed no growth after 48 hours. The blood sugar and the serum protein were normal. There was no laboratory evidence of altered blood clotting. A strongly positive test for occult blood in the stools was obtained.

Grossly bloody fluid was obtained on two occasions from the left pleural cavity. Atypical cells, Class III, were found on cytological study of the pleural fluid on one occasion. Bone marrow studies showed no tumor cells.

An X-ray of the chest confirmed the presence of a massive left pleural effusion. An excretory urogram showed a nonfunctioning left kidney with a large mass in the renal area. A retrograde pyelogram showed distortion of a debris-filled left kidney pelvis.

After suitable preoperative preparation of the patient, the left kidney was explored through an anterior incision. There was a stricture and an aberrant artery producing complete obstruction at the ureteropelvic junction. The kidney was a hydronephrotic sac, filled with debris and pus. There was no demonstrable persisting cortical tissue. A fistula was present between the renal pelvis and the descending colon, the colon being densely adherent to the kidney and part of the entire mass at this point. There was also a chronic perinephritic abscess and a left subdiaphragmatic abscess. The scar tissue surrounding these abscesses was dense, gritty and ¾ of an inch thick. The upper pole of the renal and the perirenal mass could be separated from the under surface of the diaphragm only by sharp dissection.

The left kidney, the perirenal inflammatory mass with the adrenal gland buried therein, and a segment of the descending colon were removed en bloc. Suitable sump drainage was established.

The patient's postoperative course, though initially quite stormy, was remarkable. She was discharged on her 13th postoperative day. A brief readmission was necessary one month later to establish better drainage of the renal fossa, but thereafter she progressively improved. She was in excellent health and had no complaints when seen two years later.

Type of Obstruction

The types of ureteropelvic junction obstruction in this group were as follows:

Aberrant vessel	7
Stricture	11
Stricture and aberrant vessel	2

Two patients had associated renal calculi. One patient had an incomplete reduplication of the kidney with an aberrant vessel obstructing the lower segment of the reduplication. One patient had a horseshoe kidney with an aberrant vessel producing obstruction on the right side.

Treatment

The various methods of surgical treatment are shown in Table 1.

TREATMENT
Table 1

Ureteropelvic plastics operations	5
Proximal ureteral resection and ureteropyelostomy	1
Division of aberrant artery	3
Heminephrectomy with division of aberrant artery	2
Primary nephrectomy	7
*Secondary nephrectomy	1
No treatment	1

*Referred elsewhere initially where a Y-plasty was done.

Two of the plastic operations were done by the technic described by Priestley ([3]), one was a Miculicz type of procedure; and there were two Foley Y-plasty operations.

The diagnosis was made on postmortem examination in one case. The patient was a 73-year-old man who died suddenly of a coronary occlusion on the fourth day following choledochojejunostomy and gastroduodenostomy for inoperable carcinoma of the head of the pancreas. He had complained of intermittent left flank and left abdominal pain for over twenty years. The pain had been attributed to diverticulosis. In retrospect, it seems likely that the left ureteropelvic stricture with extensive hydronephrosis, which was demonstrated at autopsy, was a more likely cause of the intermittent pain than the

minimal diverticulosis without associated diverticulitis.

Results of Treatment

We performed a definitive operation designed to preserve all or part of the affected kidney in 11 of the 19 patients who had surgery. Ten of the 11 results were excellent as demonstrated by postoperative excretory urograms and follow-up for five years or longer postoperatively. An autonephrectomy occurred in one patient who had a heminephrectomy and division of an aberrant vessel obstructing the ureteropelvic junction of the preserved portion of the duplicated kidney. The patient was entirely asyptomatic and required no further surgery.

There were no deaths.

The value of making every reasonable effort to preserve functioning renal parenchyma was forcefully brought up to us by later developments in one of our patients.

Case 5.

This man, aged 53, was admitted in January 1955 with a history of intermittent left flank pain for 17 years. He weighed 230 pounds and was 5 feet 11 inches in height. An excretory urogram showed no excretion of the dye by the left kidney. The right kidney was normal.

Exploration of the left kidney was done. There was a moderately severe hydronephrosis secondary to a fibrous stricture of the proximal ureter. A good rim of renal parenchyma remained.

The proximal ureteral stricture was 1½ inches in length. There was a bifid type of renal pelvis with little or no extrarenal pelvis. The length of the stricture and the type of renal pelvis made technically impossible a Foley Y-plasty or the rotated pelvic flap procedure described by Culp. A colleague, visiting in the operating room, suggested that a primary nephrectomy might be the most conservative method of treatment in view of the patient's age, his obesity, and the technical problems involved. The two of us discussed this suggestion carefully but eventually rejected it. The strictured proximal ureter was resected, and the normal ureter below was anastomosed obliquely to the lower portion of the bifid pelvis. The patient's postoperative course was uneventful.

Six years later this patient developed a hypernephroma in the contralateral kidney. A nephrectomy was done elsewhere in April 1961. On follow-up examination in March 1962 the phenolsulfonphthalein test of renal function was 63 per cent in two hours. He had no complaints referable to the decreased renal function.

Summary

Atypical symptoms, often referable to the abdomen only, and the frequent absence of findings which implicate the urinary tract may make the diagnosis of ureteropelvic junction obstruction difficult. This congenital anomaly may not become manifest until adult life, and it may produce intermittent symptoms over a period of months or years which the unwary diagnostician may easily mistake for intra-abdominal disease until it is too late to salvage functioning renal parenchyma.

The case histories emphasize the usual diagnostic problems and the occasional bizarre clinical pictures which these common, correctible congenital defects of the urinary tract may present.

Urologists are quite familiar with ureteropelvic junction obstruction in its various forms. Other physicians and surgeons should be equally aware of the diagnostic problems which may be presented by ureteropelvic obstruction in order to establish an accurate diagnosis sufficiently early to permit preservation of the affected kidney by definitive surgery.

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"The Lord deals the cards; you play them"—Dwight D. Eisenhower's mother.

The only difference between a rut and a grave is their dimensions.—Ellen Glasgow.



Fig. 1. Mr. A. Tuberculous lesion in upper lobe of right lung as seen in June, 1957.

Pulmonary Tuberculosis

Delay in Diagnosis

DAVID T. CARR, M.D.**
Rochester, Minnesota
JESSE E. DOUGLASS, M.D.*
Cannon Falls, Minnesota
VIKTOR O. WILSON, M.D.‡
Rochester, Minnesota

DELAY IN the diagnosis of tuberculosis can be dangerous — dangerous not only to the person with tuberculosis whose disease may worsen, but also dangerous to his family and friends to whom the disease may spread.

This is the story of just such a delayed diagnosis and the havoc that resulted.

In 1957 Mr. A. had a tuberculin test because of contact with a man who had tuberculosis. As the reaction was positive, a chest roentgenogram was made, which revealed a lesion in the right upper lobe (Fig. 1). A second roentgenogram seven months later showed no change in the lesion; a third one, made in February, 1959 (Fig. 2), also

*Read at the meeting of the Southern Minnesota Medical Association, Winona, Minnesota, Sept. 10, 1962
**Section of Medicine, Mayo Clinic
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Complacency regarding tuberculosis is common in localities with a low over-all incidence of the disease. However, the threat of this disease is ever present! We need an occasional reminder of the need for vigilance.



Fig. 2. Mr. A. Appearance of lesion in February, 1959, showing progression.

Can Be Dangerous

An Illustrative Case Report *

revealed disease in the right upper lobe. But the series of roentgenograms were not compared. Mr. A. had no respiratory symptoms at the time these roentgenograms were taken, and no further studies of the pulmonary lesion were made.

In the fall of 1959 Mr. A. noted a cough which persisted and became productive of mucopurulent sputum. Another roentgenogram, in December, 1959, revealed further progression of the lesion with cavity formation (Fig. 3), and a stained smear of the sputum was positive for acid-fast bacilli. He was immediately referred to a tuberculosis hospital.

Some data on Mr. A.'s family are outlined in Table 1. It will be noted that all were tuberculin-positive in December, 1959. By April, 1960, two of the sons had roentgenographic evidence of pulmonary tuberculosis, and their gastric cultures yielded tubercle bacilli.



Fig. 3. Mr. A. Appearance of lesion in December, 1959, showing development of a cavity.

The A family had much close contact with the B family, as Mrs. A and Mrs. B were sisters. Some data on family B are given in Table 2.

It will be noted that all four members of family B reacted to tuberculin in December, 1959; all had negative roentgenograms of the chest at that time. In March, 1960, Mr. B had demonstrable disease in both lungs (Fig. 4), and stained smears of his sputum revealed acid-fast bacilli. He immediately joined Mr. A at the sanatorium. Further studies on the rest of the family were then carried out.

A roentgenogram of Mr. B's daughter's chest in May, 1960, revealed evidence of tuberculosis, and a gastric culture that had been started in April, 1960, was positive for acid-fast bacilli.

The rapid progression of the disease in Mr. B's lungs had prompted our giving isoniazid to both wives and all five children without waiting for the results of the bacteriologic studies. Although the evidence of tuberculosis on the children's chest roentgenograms was indeed minimal, those with positive roentgenographic findings were isolated and were given sodium para-aminosalicylic acid also.

An intensive search for tuberculosis was then made among the close contacts of both families. Thirteen contacts were tuberculin-negative and remained negative. Two were tuberculin-positive and were followed without evidence of the development of active tuberculosis. Five others were tuberculin-negative when first tested but positive when retested three to four months later. Although none had positive roentgenograms of the chest, all were referred to their personal physicians for treatment of the recent tuberculosis infection as demonstrated by the conversion of the tuberculin reaction. After the daughter in family B was found to have active tuberculosis, 107 schoolmates and teachers were tuberculin tested. Only three gave a positive reaction; serial chest roentgenograms revealed no pulmonary disease in these. Ninety-five of the 104 nonreactors

TABLE 1
DATA ON FAMILY A

Member	Tuberculin reaction		Chest roentgenogram		Gastric cultures for tubercle bacilli	
	Date	Result	Date	Result	Date	Result
Mrs. A	Dec. '59	Pos.	Dec. '59 through Apr. '62	Neg.	Not done	
First son (age 10)	Dec. '59	Pos.	Dec. '59	Neg.	Apr. '60	Pos.
			Mar. '60	Pos.		
Second son (age 8)	Dec. '59	Pos.	Dec. '59 through Apr. '61	Neg.	Apr. '60	Neg.
Third son (age 3)	Dec. '59	Pos.	Dec. '59	Neg.	Apr. '60	Pos.
			Mar. '60	Pos.		

TABLE 2
DATA ON FAMILY B

Member	Tuberculin reaction		Chest roentgenogram		Sputum or gastric culture for tubercle bacilli	
	Date	Result	Date	Result	Date	Result
Mr. B	Dec. '59	Pos.	Dec. '59	Neg.	Apr. '60	Pos.
			Mar. '60	Pos.		
Mrs. B	Dec. '59	Pos.	Dec. '59 through Apr. '62	Neg.	Not done	
Son (age 17)	Dec. '59	Pos.	Dec. '59 through Dec. '60	Neg.	Apr. '60	Neg.
Daughter (age 11)	Dec. '59	Pos.	Dec. '59	Neg.	Apr. '60	Pos.
			Mar. '60	Neg.		
			May '60	Pos.		

were retested four months later and none had become tuberculin-positive.

Discussion

The "retrospectroscope" is a very revealing instrument. It not only reveals to us what we should have done in the past but frequently points the way for the future.

In retrospect, Mr. A should have had bacteriologic studies when his pulmonary lesion was first detected in 1957. Comparison of his roentgenogram of the chest in February, 1959, with the earlier ones would have revealed progressive disease, and bacteriologic studies at that time would have established the diagnosis. Isolation and treatment at that time might have prevented the infection of both household and occupational contacts.

Again in retrospect, the prompt prophylactic treatment of all of his family and the members of family B might have prevented the development of the clinically demonstrable disease that occurred in four of the eight persons involved.

The story, at least this part of it, does have a happy ending. The progress of the infection was stopped. All those needing treatment responded satisfactorily and are now apparently well. Obviously, many more follow-up examinations will be required before the whole story can be considered past history.

Summary

Delay in the diagnosis of tuberculosis can be dangerous not only to the person with the disease but also to his family and other associates. Every lesion that might be tuberculous must be studied thoroughly and repeatedly. Antituberculosis chemotherapy should be given freely to close contacts of newly-diagnosed cases, particularly contacts who react to tuberculin. Widespread application of these principles will speed the eradication of tuberculosis.



Fig. 4. Mr. B. Tuberculosis in left apex and in right lung below clavicle as seen in April, 1960. Neither lesion was present in roentgenogram of December, 1959.

Some Aspects of Potassium Metabolism



In A Case of Extreme Metabolic Alkalosis

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THE MOST common cause of hypochloremic, hypokalemic alkalosis is chronic vomiting associated with upper gastrointestinal obstruction. Three factors are responsible for the deficiency of body potassium seen in these cases — loss of potassium in the vomitus, decreased dietary intake, and loss of potassium in the urine. While considerable attention is usually directed to the gastrointestinal loss of potassium, the present case illustrates that the loss of potassium in the urine may be of greater importance.

Failure to replace the fluid and electrolyte deficits can lead to serious complications as evidenced by the near fatal outcome in the present case, in which the problem of metabolic alkalosis was further complicated by gastrointestinal hemorrhage, shock and renal shutdown.

Case Report

A 64-year-old white female was admitted to the University of Minnesota Hospitals on February 14, 1961, in a moribund state. The patient was profoundly comatose, with evidence of upper gastrointestinal hemorrhage, severe dehydration, circulatory collapse, and almost complete renal shutdown.

Past History

The past history revealed that in 1951 the patient was treated for a bleeding duodenal ulcer. She had apparently been well until August 1960 when symptoms of upper abdominal pain and vomiting appeared. The vomiting became progressively more severe over the

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next six months, resulting in the patient's hospitalization elsewhere on February 2, 1961. She was treated for upper gastrointestinal obstruction and received a total of 11.5 liters of fluid of unknown electrolyte composition during a seven-day period of nasogastric suction. On February 13 the 24-hour urine output dropped to 35 ml. and the following day the patient was transferred to the University of Minnesota Hospitals in coma and in shock.

Physical Findings

On admission the blood pressure was 75/50 mm. Hg and the pulse rate 120 and regular. A marked degree of generalized tetany was present with muscle spasms evident throughout the body. The Chvostek sign was strongly positive and spontaneous carpopedal spasms were observed. There was evidence of severe dehydration with decreased skin turgor, dryness of the tongue and decreased ocular tension. The patient responded minimally to painful stimuli and her respirations were Cheyne-Stokes in nature. Dried blood was encrusted on the lips and tongue; the vomitus was coffee-ground color, the stool black, and both tested 4+ with guaiac reagent.

Laboratory Findings

Laboratory studies revealed a hemoglobin of 20 grams per cent, a white blood count of 36,000 with 79 per cent neutrophils, 16 per cent lymphocytes and 5 per cent monocytes. The blood urea nitrogen was 99 mg. per 100 ml. The serum electrolytes revealed an extreme degree of alkalosis with a chloride of 44 mEq per liter, a carbon dioxide combining power of 77 mEq per liter and a potassium of 4.7 mEq per liter. In addition, a marked degree of hypernatremia was present with a serum sodium of 177 mEq per liter. The arterial pH was 7.50. Other laboratory results included a serum magnesium of 4.7 mEq per liter, a serum calcium of 10.3 per 100 ml. and a remarkable serum phosphorus of 26.0 mg. per 100 ml. (The serum phosphorus rapidly fell to 3.8 mg. per 100 ml. by the third day when the 24-hour urine output had increased to 237 ml.) Total serum proteins were 6.1 grams per cent with a serum albumin of 2.9 grams per cent and serum globulin of 3.2 grams per cent. Liver function tests were within normal limits.

The electrocardiogram revealed a sinus tachycardia with prolongation of the Q-T interval suggestive of hypokalemia. Despite the normal serum K+ of 4.7 mEq per liter, total body potassium was considered low because of the history of prolonged vomiting and recent nasogastric suction and the prolonged Q-T interval on the electrocardiogram.

Treatment Problem

The problem of finding a suitable form in which to administer chloride ion arose, since both potassium and sodium intake had to be restricted: potassium because of the elevation of BUN and extreme oliguria, and sodium because of the serum sodium of 177 mEq per liter. On the first day 80 mEq of KCl, 100 mEq of NH_4Cl, and 192 mEq of Cl− as arginine monohydrochloride were given. On the second day the serum Cl− rose to approximately 75 mEq per liter and the carbon dioxide combining power fell to around 40 mEq per liter (Figure 1).

The Progress

On the third day the serum potassium rose to 7.5 mEq per liter (Figure 1); so potassium was withheld the next day. The lack of any definite evidence of hyperkalemia on the electrocardiogram at this time was further confirmation of a total body potassium deficit.

On the fourth day 410 mEq of NH_4Cl were administered to supply the necessary chloride ion. Shortly thereafter the patient became less responsive and increasingly drowsy, suggesting a form of "ammonia intoxication." She became more alert however, after the NH_4Cl was discontinued; by the fifth hospital day she was mentally clear and able to sit up for short intervals.

On the fifth and sixth days, chloride was administered in the form of NaCl. In response to the heavy load of NaCl, the serum Na rose to 158 mEq per liter (Figure 1). The urine Na+ during this time remained less than 10 mEq per liter. Sodium was restricted to 140 mEq per day and the hypernatremia soon disappeared (Figure 1).

The urine output rose to over two liters on the fifth day (Figure 2) and the serum potassium dropped to 3.5 mEq per liter (Figure 1). The specific gravity of the

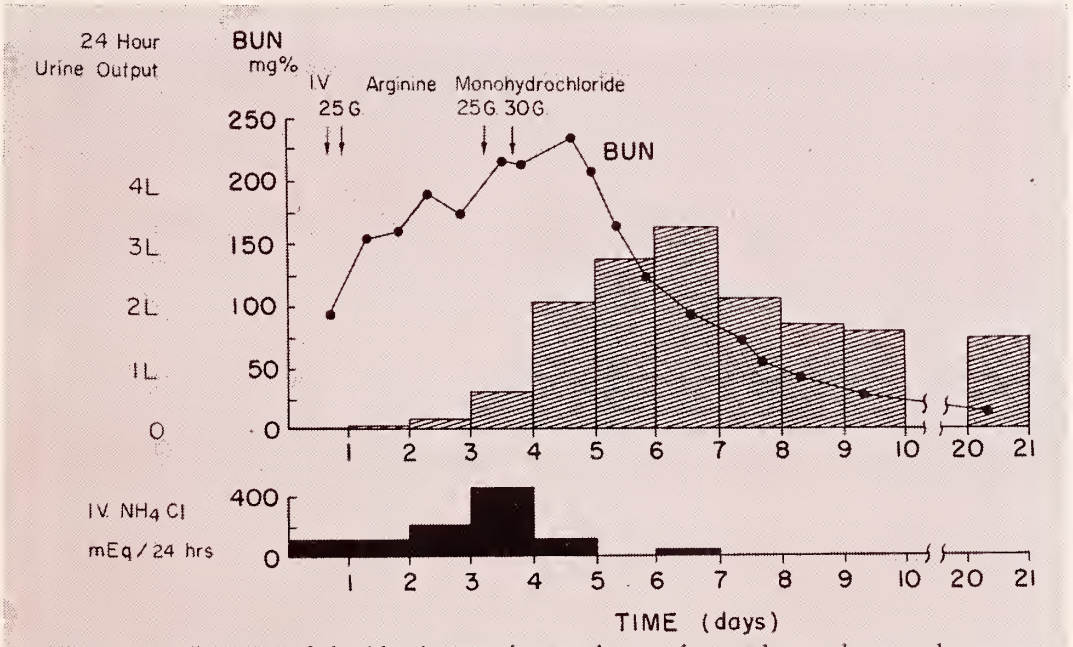


Figure 2. A line plot of the blood urea nitrogen is superimposed on a bar graph representing the 24-hour urine output. The daily quantity of NH_4Cl administered is plotted below in solid bars. Arrows at the top of the graph indicate administration of I. V. arginine monohydrochloride.

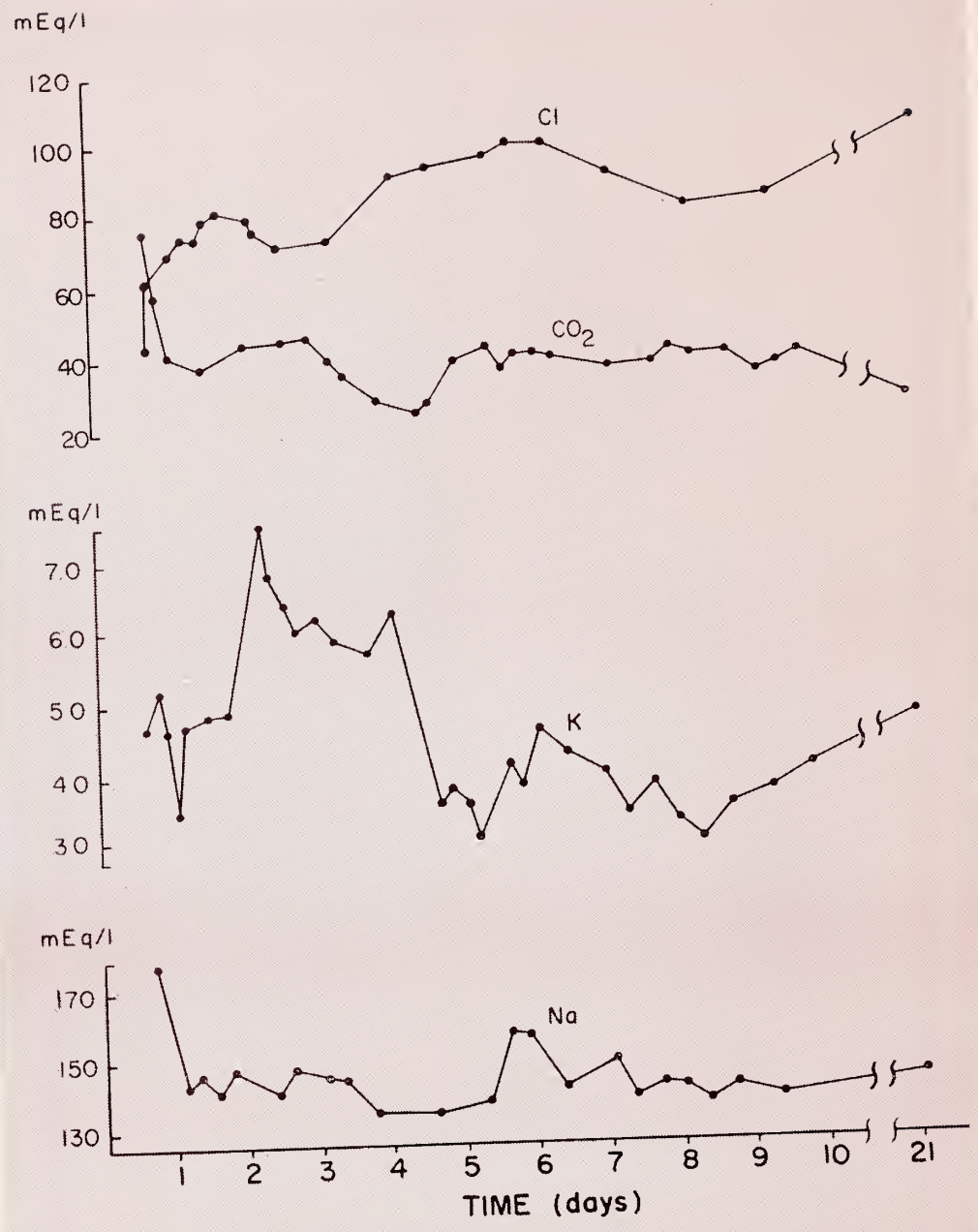


Figure 1. The concentrations of serum electrolytes in mEq per liter are plotted during the critical period of the patient's course.

urine was in the range of 1.020 to 1.024 in the initial oliguric stages and dropped to around 1.015 to 1.020 during the subsequent return of renal function. At no time was the specific gravity of the urine fixed and isosthenuric.

The blood urea nitrogen continued to rise after admission to a peak value of 238 mg. per 100 ml. on the fifth day, despite an increasing urine output over that same period of time (Figure 2).

The Primary Diagnosis

An upper G.I. series performed on the tenth hospital day showed a duodenal ulcer but no X-ray evidence of obstruction. The nasogastric tube was removed on the eleventh day and a strict Sippy regimen was instituted. Antacids and milk were given alternately every half hour from 7 A. M. to 10 P. M.

During the patient's four-week confinement on the medical service her hemoglobin gradually dropped despite periodic blood replacement; stool guaiacs ranged from 0 to 4+. At the end of the fourth week, vomiting reappeared, although the diet had been advanced only to a second week Sippy program. A second upper G.I. series at four weeks revealed constriction of the duodenal bulb with evidence of obstruction. The patient was transferred to the surgical service and a segmental resection of the stomach, pyloroplasty and vagotomy were performed. The patient had an uneventful recovery and was discharged on the ninth postoperative day. She was last seen six months after surgery, doing well with no recurrence of symptoms.

Source of Potassium Loss

An intake and output balance for sodium, potassium and chloride was obtained by measuring the 24-hour intake of fluid and electrolyte, and determining the electrolyte content of the gastric aspirate and urine, the volumes of which were carefully measured and recorded (Table 1). The loss of potassium in the gastric aspirate was only 19 to 28 mEq daily (average of 23 mEq per day), but the urinary loss of potassium ranged

TABLE 1

Approximate intake-output data of sodium, potassium and chloride for the first ten days as measured by total fluid intake and total output in the urine and gastric aspirate.

	Sodium mEq	Potassium mEq	Chloride mEq
Intake	1,518	1,679	4,160
Gastric Output	755	194	2,190
Urine Output	478	1,230	222
	+ 285	+ 255	+ 1,748

from 68 to 220 mEq daily (average of 138 mEq per day). The urinary loss of K^+ was approximately six times the gastric loss, considering either the daily excretion or the total excretion over ten days (Table 1). The potassium deficit was not replaced in ten days, not only because the daily loss of K^+ was in itself a formidable task to keep up with, but also because potassium was restricted during the oliguric phase. Chloride ions in the form of NH_4Cl and arginine monohydrochloride account for the difference of 963 mEq between the total cation ($Na^+ + K^+ = 3,197$ mEq) and chloride administered. The relationship of potassium deficiency to alkalosis and to the kidney will now be considered.

Potassium Deficiency vs. Primary Alkalosis

A competition between hydrogen ion and potassium ion for secretion in the distal renal tubular cells has been postulated by Berliner, Orloff and Kennedy[1]. In primary alkalosis, as seen in upper gastrointestinal obstruction associated with excessive loss of hydrogen and chloride ions, there is a deficiency in hydrogen ions, and consequently the distal renal tubular cell will secrete more potassium than hydrogen ions. The urine becomes alkaline and has a high potassium content, as in the case presented.

Potassium Deficiency As A Cause of Alkalosis

In 1952 Cooke[2] found that during dietary potassium deficiency in rats the K^+ leaving the muscle cell was partially replaced by Na^+, and for every three milliequivalents of K^+ leaving, two milliequivalents of Na^+ would enter the cell. It was postulated that the cation deficit was corrected by H^+ ions migrating into the cell, resulting in an intracellular acidosis and extracellular alkalosis.

In 1952 Black and Milne[3] showed that potassium deficiency in man was not associated with a loss of H^+ ions from the body and suggested that alkalosis was due to a redistribution of H^+ ions between the extracellular and intracellular spaces. The migration of H^+ ions into the cell should lower intracellular pH; however, Eckel[4] found no difference in the muscle pH between normal and potassium-depleted rats and suggested that the disparity between K^+ loss and Na^+ gain by the cell could be accounted for by the intracellular accumulation of basic amino acids[5].

In 1960 Saunders et al.[6], using a new method of measuring pH found that the intracellular pH was indeed lower in potassium-depleted muscle than in normal rat muscle. They concluded that potassium depletion causes extracellular alkalosis and intracellular acidosis with an elevated H^+ ion concentration gradient across the muscle cell membrane.

Applying the hypothesis of Berliner et al.[1], in potassium deficiency there tends to be a preferential secretion of H^+ ions by the distal renal tubular cell resulting in a secondary alkalosis and an acid urine low in potassium content.

Hypokalemic Vacuolar Nephropathy

The pathologic lesion in hypokalemic nephropathy consists of swelling of the proximal tubular epithelium, foamy degeneration of the cytoplasm, and large discrete vacuoles that do not stain for fat or glycogen. The glomeruli, interstitial tissue, and blood vessels are essentially normal, though functional disturbances of the glomerulus have been noted.[7]

Proximal tubular dysfunction has been implicated by decreased para-amino-hippurate transport and occasional reports of aminoaciduria.

The hallmark of hypokalemic vacuolar nephropathy is the inability of the kidney to concentrate urine. Urine of fixed specific gravity is the most common finding. Concentrating power rapidly reverts to normal on correction of the potassium deficit, but in some cases normal renal function is not attained for six weeks to three months.

The major factors in the production of anuria in the case presented were severe dehydration, hypovolemia and shock. Renal function returned to normal following rehydration, blood replacement and restoration of the blood pressure to normal levels.

Summary

In a patient with an extreme degree of metabolic alkalosis and hypernatremia the loss of potassium in the urine was approximately six times as great as the loss of potassium by the gastric route.

It is difficult to attribute the development of renal shutdown to potassium deficiency in this case, since the kidneys maintained their concentrating ability, and urine specific gravities in the range of 1.020 to 1.024 were observed even during the oliguric phase.

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DID YOU KNOW?

Trephining

"One of the most amazing treatments of primitive man was the operation of "trephining" or making holes in the skull. Where the operation originated no one can say, but relics have been found that show it was practiced all over Europe, Britain, and even in Peru.

"Trephining was originally performed, no doubt, to cast out the devils causing head symptoms, such as severe headaches, epilepsy or fits that might have resulted from injury to the head. It is hard to imagine how such operations could have been endured without any anesthetic that we know of to put the patient to sleep. The operation was common, however, and it is certain that many of the patients survived because skulls have been found in which the edges of the cut bone show that healing took place."[1].

1. Garland, Joseph, M.D.: "The Story of Medicine" Page 6

No branch of higher education is more neglected today than the re-education of the educated.—Dr. Robert D. Calkins

The Use of Adrenal Steroids in Cardiac Disease

Our understanding of the basic physiologic disturbances in various cardiac diseases increases continually. The author presents a clear and informative concept for the use of adrenal steroids in several cardiac disorders.

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INCREASED USES OF adrenal steroid hormones in the care of patients with cardiac disease have evolved with the increased knowledge of these compounds. The first cardiac lesions so treated were those of an inflammatory nature: namely, the lesions of rheumatic carditis. This discussion will not deal with the effect of the adrenal steroid hormones in patients with inflammatory lesions, but with severe congestive heart failure, complete AV block, and orthostatic hypotension. In each case the adrenal steroid hormones are highly effective adjuncts to the conventional therapeutic measures.

Case No. 1

A 79-year-old male was admitted for treatment of severe congestive heart failure. Since early 1960 he had symptoms of left ventricular failure which had responded well to conventional therapy. Three months prior to admission, in spite of increasing uses of diuretic measures, the patient had shown increasing weight gain, weakness, dyspnea, and orthopnea. When he was admitted for further treatment, physical examination revealed a blood pressure of 140/60 and a regular pulse of 110. A murmur of aortic insufficiency was noted as well as massive cardiac enlargement of a left ventricular type, bilateral pleural effusion, and hepatomegaly. In addition to routine management he was given spirolactone (Aldactone) in doses of 100 mg. q.i.d. During the first week a diuresis of seven pounds resulted, part of which was accounted for by two thoracenteses. At this time glucocorticoid therapy was given in addition to the above regime in the form of Medrol in doses of 32 mg. daily with gradual reduction of dosage over the next 10 days. The patient responded well with increased appetite, feeling of well being, and a 10-pound diuresis. He continued to improve, again responding to conventional therapeutic measures, and was discharged.

Discussion

The observation of Luetscher[1] of the potent sodium-retaining adrenal corticosteroid, aldosterone, has resulted in a re-evaluation of the classic theories of edema production. Refractory edema, due to congestive failure, does not result entirely from the increase of the venous pressure, or from reduced glomerulo-filtration secondary to a decrease in cardiac output; nor does it result entirely from an increased secretion of aldosterone. Davis[2] has shown experimentally that all of the above factors operate in edema formation. Figure 1 demonstrates this relationship resulting in increased levels of aldosterone in congestive heart failure. A decrease in blood flow through the renal afferent arteriole is essential. This arteriole acting as a volume receptor when stimulated induces release by the juxtaglomerular cells of renin which is converted to Angiotensin II. This latter substance is the direct stimulus to the adrenal which induces aldosterone secretion. The decrease in the afferent arteriolar volume is the key to the reaction; it may be a direct result of a disturbance of the salt and water balance, or the result of decreased cardiac output. Hence, as indicated above, an inter-relationship of various factors is necessary for production of edema. It logically follows then that treatment should be directed to increased cardiac output, which will improve glomerular filtration and reduce the venous pressure, thus decreasing aldosterone production by the adrenal gland. Table 1 summarizes the major effects of various modes of treatment of congestive heart failure.

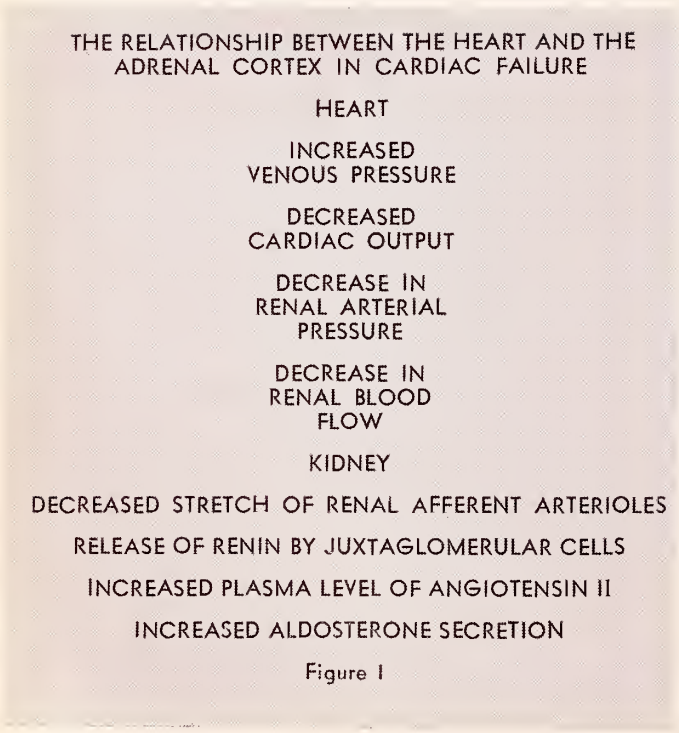


Figure 1

Table 1

TREATMENT	EFFECT
1. Rest	A. Decreased cardiac load. B. Decreased aldosterone secretion.
2. Salt restriction (dietary)	A. Decreased total salt and water volume. B. Decreased aldosterone secretion.
3. Digitalis	A. Increased cardiac output B. Salt and water excretion (kidney).
4. Diuretics	A. Salt and water secretion (kidney). B. Lower venous pressure.
5. Spirolactone (Aldactone)	A. Block aldosterone.
6. Glucocorticoids	A. Block ACTH. B. Water diuresis (kidney). C. Increased cardiac output.

The patient presented had received conventional therapy with decreasing effectiveness. Some diuresis was obtained by addition of spirolactone; however, significant improvement did not occur until the glucocorticoids were added to the therapeutic regime. As indicated in Table 1, the effect is one mainly of inducing water diuresis, and hence of possibly improving the total salt and water balance of the body. Experimental evidence suggests a direct effect similar to that of digitalis on the heart muscle; but this has not been substantiated in vivo.[3]

Thus, in severe refractory congestive failure, adrenal steroid hormones will often stabilize the marked salt and water imbalance and effect improvement of the clinical status of the patient.

Case No. 2

Treatment with adrenal steroid hormones of acute AV block.

The patient, a 54-year-old male with moderate hypertension developed severe chest pain. The admitting electrocardiogram was diagnostic of an acute posterior myocardial infarction. Forty-eight hours after admission the patient had a decrease in pulse rate to 52. This time the electrocardiogram showed a second degree AV block with a three to two Wenckeback phenomenon. The patient was started on Isuprel, 10 mg. q.i.d. and Medrol, 8 mg. q.i.d., which was continued for 48 hours, then gradually reduced and discontinued at the end of 10 days. Following initiation of this therapy a complete AV block was noted with a rate of 80, which continued for the next week. At the time of discharge the patient had normal AV conduction. During the period of

decreased pulse rate he had subjective symptoms of dyspnea, signs of pulmonary congestion, and fall in blood pressure. As soon as the pulse rate was controlled, these parameters were corrected and the patient made an uneventful recovery.

Discussion

The case presented illustrates the effect of complete heart block on the cardiac dynamics. The cardiac rate, the most efficient method of maintaining cardiac output, is fixed and slow. Because of the myocardial damage induced by the myocardial infarction, cardiac output could not be maintained, and the patient developed clinical pulmonary edema. Therefore, increased cardiac rate was required by methods which would not further injure the cardiac musculature and hence risk a fatal ectopic or ventricular rhythm. Complete AV block which results from acute myocardial infarction responds well to adrenal steroid therapy, not, as expected, by reduction of inflammatory reaction, but by direct acceleration of AV condition. Again, clinical observation provides substantiation, as a high percentage of patients with Addison's disease have AV block which is immediately reversed after adrenal steroid therapy is introduced. Patients with acute rheumatic fever when treated with adrenal steroid hormones, show a faster response as measured by a decrease in PR interval when compared to patients treated with aspirin. Such therapy can be of short duration as illustrated in this case; for once the cardiac rate is improved, the cardiac output increases and the emergency is controlled. As indicated, the action is most likely a direction on AV conduction, possibly through the effect of adrenal steroids on sodium and potassium balance, and not related to a reduction in inflammatory process. Experimental studies on myocardial infarction produced in dogs treated with adrenal steroid hormones have failed to show any decrease in size of infarct or amount of inflammatory reaction.[5] A patient with acute myocardial infarction complicated by an acute AV block was treated with adrenal steroid hormones. The treatment is safe and effective and may prevent, as a consequence, left ventricular failure due to slow ventricular rate.

Case No. 3

Treatment of Orthostatic Hypotension with Adrenal Steroids.

The patient, a 40-year-old male, was originally treated for paroxysmal atrial fibrillation and showed a good response to quinidine at that time. Later the patient spontaneously discontinued the drug, and three months prior to admission had a recurrence of the arrhythmia, which was relieved by digitalis and quinidine. About this same time he became depressed and was treated with a combination of Parnate and Stelazine, but after the institution of this therapy he began having syncopal episodes which were partially relieved when the drug was discontinued. However, symptoms of severe depression recurred and the patient was admitted to the hospital, where he continued to have episodes of orthostatic hypotension, the following table indicating the blood pressure response before and after treatment.

BLOOD PRESSURE BEFORE AND DURING THERAPY

TREATMENT	BLOOD PRESSURE LYING	BLOOD PRESSURE STANDING
NONE	100/60	40/0
	122/82	52/0
Support Garments and Amphetamine Drugs	110/70	60/40
	120/70	70/50
9-Alpha-Fluorohydocortisone	120/80	80/50
	150/100	110/70
	120/80	96/60

The patient was evaluated from a neurologic standpoint and no evidence of sympathetic blockade was present. Support garments plus amphetamine drugs resulted in no improvement; the patient, in fact, suffered undesirable side effects of recurrent arrhythmia. He was, therefore, placed on 9-Alpha-fluorohydocortisone (Florinef) in doses of 2 mg. with gradual reduction to .1 mg. daily. On this regime the patient showed gradual improvement. He was subsequently discharged without further syncopal attacks, and one month after discharge, when he was seen on an outpatient basis, he had had no subsequent attacks.

Discussion

The patient illustrated presents a number of interesting facets. The antidepressant agents of the monoamine oxidase inhibitor family exert a potent effect on the vasomotor system, and although the patient improved somewhat following the withdrawal of these drugs, the syncopal episodes were incompletely controlled. It was evident that the patient did not have any basic neurologic disorder, and, as is often the case, support garments and amphetamine drugs were ineffective. Hickler[6] reported the use of 9-Alpha-fluorohydrocortisone in patients with orthostatic hypertension. This drug was tried because of a previous observation which indicated that desoxycorticosterone acetate when injected was required

for norepinephrine release. An alternate explanation for its effectiveness is related to increase of intravascular volume, which would compensate for the loss of vascular tone when the patient is standing. Again, the net result may well be a combination of these factors.

Summary

Three cases have been presented. Each illustrated a different clinical problem; however, each was treated with adrenal steroid hormones. Increased knowledge of adrenal steroid hormones has resulted in enhancing our therapeutic armamentarium as well as increasing our fundamental knowledge of the disease treated.

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PICKWICKIAN SYNDROME

Charles Dickens, in 1837, described the redfaced, fat boy and on that basis Burwell et al. termed this syndrome the Pickwickian syndrome. It is characterized by extreme obesity, somnolence, cyanosis, nocturnal Shein Stokes respiration, secondary polycythemia, and congestive heart failure.

The symptoms relate to extreme obesity and myocardial insufficiency. Many of the symptoms disappear with weight reduction. There might be a right-sided cardiac enlargement and the electrocardiogram may reveal a right axis deviation with changes in T, V-1, V-2, and V-3, suggesting anterior wall ischemia.

The urinary gonadotropin and 17 ketosteroid excretion are within normal limits suggesting that this is not an endocrinopathy.

The treatment consists of weight reduction.

Much smoking kills live men and cures dead swine. — George Prentice

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The man who is a pessimist before forty-eight knows too much; the man who is an optimist after forty-eight knows too little. — Mark Twain

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Everything comes to him who hustles while he waits. — Thomas Edison

Abdominal Aneurysm

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All patients should receive a careful examination of the abdomen to detect aneurysm of the aorta. When detected and removed early, the results are excellent. Increasing physician awareness is needed to extend life-saving surgery to more people.

THE LETHAL potential of an untreated abdominal aneurysm has been well documented by several excellent clinical studies. While estimates vary, it seems conservative to assume that one of three patients will develop rupture of the aneurysm within one to one and one-half years of the time it is diagnosed, and the majority will rupture within a five year period.[2,3,8,9,11,12] The small size of an aneurysm, and lack of symptoms referable to it, are no guarantee that it will not rupture.[14]

Excision of the aneurysm with replacement by prosthesis can be done with a remarkably low surgical mortality and morbidity even though the majority of patients operated on are elderly and exhibit other evidences of severe vascular disease, i.e. coronary arterial disease or cerebrovascular disease.[1,4,6,7,10,15] Serious late postoperative complications, such as bleeding from the suture line, dehiscence, rupture or occlusion of the prosthesis are rare.[5,13]

Indications for Surgery

Spontaneous recovery after rupture has occurred is rare. Under these circumstances, surgical excision with prosthesis replacement will salvage over half of the cases.[3,7,11,14] This paper consists of an analysis of results in 52 cases of nonruptured aneurysms operated on between 1957 and June, 1962. (Table 1) An additional 17 cases of ruptured abdominal aneurysms operated on during this period of time will be the subject of a later paper.

The age of the patients ranged from 53 to 80, with the majority (28) in their sixties. Eight patients were in their fifties, and fourteen were in their seventies. One patient was 80 years old.

TABLE I

Nonruptured Aneurysm

No. of Cases 52	Age of Patients	No. of Patients
Females 8	53-59	8
Males 44	60-69	29
	(60-65)	(20)
	70-79	14
	80	1
		Total 52

Risks of Surgery

There were five surgical deaths (9.6 per cent). All other patients were discharged from the hospital ambulatory and were apparently well. Three of the five deaths occurred in the first six patients subjected to surgery. Subsequently there have been two deaths in the last 46 consecutive operated cases (4.3 per cent mortality). This latter figure, we believe, represents the surgical mortality that one can anticipate today with modern prosthetic materials, improved vascular clamps, etc.

There are no significant differences in the mortality rates in the different age groups. The patients in their seventies have about the same immediate survival rate as those in their fifties and sixties. (Table 2).

TABLE 2

Immediate Surgical Mortality

By Age Group

Age	No. Cases	Deaths
53-58	8	1
60-69	29	2
70-79	14	2
80	1	0
	52	5

Over-all mortality 9.6%

2 deaths in last 46 cases — 4.3 per cent mortality

No patient has been denied surgery except for severe angina (at rest) heart failure, not amenable to medical management, and for extremes of age and senility.

Associated Diseases

An abdominal aneurysm rarely appears as a single manifestation of vascular disease, and the presence of other vascular abnormalities, in our opinion, does not usually contraindicate surgical correction of the aneurysm. Thus, 15 of the 52 cases had well-documented episodes of coronary thrombosis with infarction. In fact, not infrequently the aneurysm was first noted on admission to the hospital for treatment of the coronary infarction. Two patients were in frank heart failure when first seen; surgery was delayed until the signs of failure were corrected by medical management. Both patients had uneventful and rapid surgical convalescence. One, a dentist, resumed his practice and lived over three and one-half years before he again developed signs of heart failure with subsequent death from the latter cause. The second patient survived surgery for a perforated duodenal ulcer approximately six months after excision of the aneurysm but has since died of recurrent heart failure. One patient had a cerebrovascular accident in the hospital the night prior to a planned resection of her abdominal aneurysm. After an interval of 12 months, during which she completely recovered from the paralysis, the aneurysm was successfully removed. She has been well and now leads an active life 14 months postoperatively. Two patients had both strokes and coronary infarctions; two others had coronary infarctions complicated by chronic, moderately severe angina; these four also had an uneventful postoperative convalescence. Another patient with combination angina and previous coronary infarction, however, developed cardiac arrest and died during the surgical procedure. The electrocardiogram was read as abnormal in almost all of the patients subjected to surgery.

Comments

In summary, 22 of the 52 patients had histories indicating prior severe cardiovascular or cerebrovascular injury.

Review of the records of the five surgical deaths revealed two resulting from technical errors not likely to recur with the advent of better prosthetic grafts and improved vascular clamps. A third patient died of heart failure in the immediate postoperative period due to aortic insufficiency. The fourth patient developed cardiac arrest and died during surgery. This patient, as

noted above, had some degree of coronary insufficiency and angina and had a previous coronary infarction. The fifth patient died of postoperative renal suppression.

Of 47 operative survivals, 36 patients are still alive and free of complications referable to the graft. Late complications, deaths, and current survival figures are summarized in Tables 3 and 4. Review of the cause of death in the 11 patients who died shows that three died of complications directly related to the graft. The remaining eight died of causes related to generalized arterial disease. One of the above eight died of a ruptured thoracic aneurysm. This patient had recently been discharged from the hospital after repair of his abdominal aneurysm and was to be readmitted for repair of the thoracic aneurysm after a short period of recuperation.

TABLE 3

LATE COMPLICATIONS

Alive 36
Dead 11

Causes of Death	No.
Graft failure	
1. Blowout of homograft 3½ years	1
2. Rupture at suture line into duodendum	1
3. Infected graft hemorrhage	1
Progressive generalized arteriosclerosis	
1. Cardiovascular accident	2
2. Coronary infarction	3
3. Ruptured thoracic aneurysm	1
4. Heart failure (9 months) (4 years)	2
Total	11

Three patients had a combination of femoral aneurysm as well as multiple intra-abdominal aneurysm. The presence of a femoral aneurysm should alert the physician to the likelihood of similar pathology in the iliac arteries and abdominal aorta.

TABLE 4

LATE SURVIVAL

Year of Surgery	No. Operations		Immediate Survival	Now Alive
1957	4	—	2	0
1958	8	—	7	5
1959	9	—	8	6
1960	11	—	11	10
1961	12	—	11	8
1962 (May)	8	—	8	7
Total	52	—	47	36

Summary

1. Fifty-three patients have been operated on for nonruptured abdominal aneurysm, the ages extending from 55 to 80.
2. Twenty-two of the 53 patients had evidences of other major cardiovascular abnormalities.
3. Immediate surgical mortality was 9.6 per cent and in the last 46 cases 4.3 per cent.
4. There is no apparent increase in the immediate operative mortality in the 70-year-old group as compared to the 50-year-old group.
5. Of 47 operative survivals, 36 are still alive and well. Three of the 11 died of problems referable to the graft, the other eight of other vascular abnormalities.

While one cannot state dogmatically that every patient with abdominal aneurysm should be subjected to surgery, the weight of evidence clearly suggests that, except in rare instances, surgical intervention is clearly justified.

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Patron Saints in the Field of Medicine
The Month of May

On the roster of May saints associated with healing and nursing appear many heroic souls whose names may be obscure but whose lives were none the less dedicated.

Endowed with miraculous healing power were St. Desideratus (May 8), St. Magdalen Albrizzi (May 15), and St. Nicetas of Pereaslav (May 24); immortalized for their humanitarian nursing and care of the sick were St. Joachim De Mas (May 22) and St. Angela Merici (May 31).

For fever you could call on St. Germanus of Paris (May 28) or St. Sigismund (May 1); if you were suffering from headache, invoking St. Emilia (May 31), St. Zenobius (May 25), or St. Ubaldus (May 16) might relieve you; for foot troubles St. Peregrinus (May 1) and St. Servatus (May 13) were at your service.

Many other maladies also had their respective patron saints whose commemoration days fall in May.

Chemotherapy in Cancer Control

It seems to me that the incidence of neoplastic diseases will not likely decline of its own accord. Thus we may look ahead to the need for even greater efforts from all the disciplines of science before we can hope to reach this goal. The fact that chemistry will have an important role in this dramatic achievement is quite apparent. All of us interested in this approach to the problem must be increasingly aware of the varied contributions chemistry will make in solving the riddle of neoplastic growth and in treating its disease manifestations. It will be of benefit to our professions and to the goal we seek if all of us become as familiar as possible with current developments as chemistry assumes an ever more important place in achieving the complete control of cancer.—John R. Heller, M.D., President, Memorial Solan-Kettering Cancer Center, in "The Percolator," Feb.-March 1962.

Self conceit may lead to self destruction.—Aesop

CARCINOMA of the LUNG

Surgical Aspects

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PRIMARY BRONCHOGENIC carcinoma is not a rare condition. It occurs in the male population as commonly as carcinoma of the stomach or colon; hence, sooner or later it will be encountered in the practice of almost every practitioner. The number of cases which are recognized are almost in direct proportion to the clinician's index of suspicion. It is a treacherous type of tumor which can mimic almost any other condition of the lung as well as be concealed by many other types of disease. Unfortunately, diagnosis is often made so late that the chances of cure are not good.

However, once the condition is recognized and diagnosed, the problem of treatment becomes paramount. Of the three types of treatment available, radiation therapy, chemotherapy, and surgical extirpation, only the last has produced results of more than a palliative nature.

The Natural History

Before discussing treatment of this condition, let us review briefly the natural history of carcinoma of the lung not treated surgically. From a large collected series reported on by Simons in 1937 30% of the patients were dead within three months of diagnosis, another 30% within the next three months, and most of the remainder in the following six months; very few survived for more than one year. It must be recognized, however, that late diagnosis was then the rule rather than the exception.

Of the 443 cases collected by Buchberg, Lubliner and Rubin reported in 1951 that 84.2% of the patients died within two years of the onset of symptoms, that only 15.8% lived more than two years, and that only seven lived five years or

longer, a survival rate of 1.5%. Patients with the epidermoid type of carcinoma survived for the longest period, those with the anaplastic tumors the shortest, those with adenocarcinoma occupying a mid-position.

Criteria for Success in the Treatment

Success in the treatment of bronchogenic carcinoma depends upon complete removal of the tumor before the condition has become disseminated from the local site of origin. Though there are definite exceptions, this disease tends to metastasize early and widely.

Type of Tumor

The type of tumor definitely influences the chances of successful treatment. The squamous cell or epidermoid type offers a somewhat more favorable prognosis than the adenocarcinoma or anaplastic type; but even within these three divisions there is a marked variation in the amount of differentiation. Theoretically, early discovery and early removal should offer a more favorable prognosis; however, a poorly differentiated tumor, even if discovered and removed early, has a less favorable prognosis than a well differentiated tumor discovered at a later date.

Extent of Involvement

The degrees of lymphatic spread, of vascular involvement, and of bronchogenic dissemination likewise alter the prognosis. The location of the tumor within the lung, as well as its local progression, also influences the chances of recovery. Unfortunately, as no one knows at the onset just which of these conditions prevail, we have to proceed on the basis of their being recognized at the earliest possible moment and operated on without delay, carrying out the most complete procedure which local conditions, experience, and judgment will permit.

The Types of Treatment

It is being recognized with increasing frequency that at least some carcinomas develop slowly and remain localized for a considerable period of time, while others apparently travel like wild fire from the onset. Theoretically, local excision alone at this stage should be curative, but I doubt that any surgeon would voluntarily treat carcinoma in this way. We have seen several patients treated by local excision under the misapprehension that we were dealing with a metastatic tumor, in whom subsequent studies showing no recurrence have convinced us that the original tumor was primary and not metastatic. Local excision as a palliative procedure, however, has at times proven efficacious on a temporary basis and so justified the procedure.

Radical Pneumonectomy

An ideal operation for primary bronchogenic carcinoma is pneumonectomy with mediastinal lymph node dissection, following the principles laid down for surgical treatment of carcinoma of the breast, stomach, colon, and other sites where such a plan is feasible. If at all feasible and if circumstances are favorable, this procedure should be recommended and carried out. The best results to date have been obtained in this way; many factors, however, may enter the picture and alter the situation, thus inducing the surgeon to carry out less than the ideal procedure. The age of the patient, attained or physiological, must be considered, also the cardiovascular status, vital capacity, and respiratory reserve, as well as many local factors. There is little virtue in successfully removing a carcinoma by a radical procedure, only to leave the patient a respiratory cripple, so handicapped that he can not enjoy a prolonged life.

There are certain instances in which close proximity of the tumor to the trachea in an otherwise operable situation may require excision of a portion of the tracheal wall, or of the carina with reimplantation of the contralateral main bronchus into the trachea. Here the problem of clearing the remaining lung of secretions postoperatively becomes a major one. Because the cough reflex seems to be centered at or near the carina, even with tracheostomy and repeated bronchial suction, the problem is still a serious one. The tendency for bronchogenic carcinoma to spread not only through the lymphatics, but into the submucosal area, at times for some distance beyond the recognizable tumor, often renders the foregoing procedures futile.

While theoretically a more complete operation, the so-called radical pneumonectomy which

attempts to remove the paratracheal as well as all other mediastinal lymphatic structures, in conjunction with excision of the lung, apparently has not materially improved results over those obtained by a standard pneumonectomy; it has introduced a number of complications, including interruption of the blood supply to the tracheal wall at the site of suture and a higher incidence of bronchial fistula formation.

Lobectomy

Lobectomy must be considered a less complete operation for carcinoma than pneumonectomy with mediastinal lymph node dissection. While some of the lymphatic drainage areas can be removed, not all of them can be; nor can they be excised as far proximately as in the standard pneumonectomy. Other factors, however, must also be taken into consideration. Carcinoma of the lung is a disease of elderly patients. A considerable number of individuals of advanced years, some with cardiovascular conditions, some with emphysema with greatly reduced respiratory reserve could withstand the loss of one lobe, but could not tolerate pneumonectomy, without being left respiratory cripples of severe degree.

Evaluating the Indications for Operation

One can not state categorically at what age it becomes inadvisable to carry out pneumonectomy. The former idea that sixty-five years was the age limit, is certainly far from true, for it is physiological rather than attained age which is important. We have successfully carried out a pneumonectomy in a patient seventy-nine years old with good results. Likewise it is impossible to set a minimum vital capacity level at which pneumonectomy becomes contraindicated, for here again there are many variables, not the least of which is the amount of functioning lung which is to be removed at the time of surgery. We have successfully removed the entire lung without difficulty in a number of individuals with a total vital capacity not exceeding one liter. In all these instances no functioning lung was removed at the time of surgery.

Under such conditions, if the carcinoma is small and if there is no evidence of lymph node involvement, lobectomy might well give as satisfactory results as a more extensive operation. This has proven to be the case in a number of individuals. I have one patient, a seventy-one-year old man with silicosis and some evidence of emphysema, who, after fourteen years, shows no evidence of recurrence following a right lower lobe lobectomy for squamous cell carcinoma. Another fifty-two-year old man with a grade III squamous cell carcinoma in the right upper lobe, had a right upper lobe lobectomy in May of 1949, because the anesthesiologist was unable after repeated trials to adequately maintain oxygenation and to avoid cyanosis with the lower and middle lobes collapsed. To date he has shown no sign of any recurrence.

Palliative Lobectomy

Lobectomy as a palliative procedure, removing a necrotic tumor mass or secondary abscess, thereby relieving the patient of distressing symptoms and suppuration, can well be justified in certain instances. Local excision, or partial lobectomy for a tumor mass in a severe asthmatic, may at times be justifiable. For example, a sixty-nine-year old man with severe asthma with marked cyanosis and previous coronary heart disease, and with a growing malignant left upper lobe mass and associated gynecomastia, had a partial left upper lobe lobectomy without any lymph node excision. His cyanosis and asthma have improved markedly; at the present time, two and a half years later, he shows no sign of recurrence of his carcinoma.

Theoretically, if carcinoma can be discovered when it is a local nodule and before lymphatic dissemination has occurred, local excision might prove adequate; however, as no one can count on such ideal conditions, I do not believe that a surgeon is justified in resorting to such a procedure except under very unusual circumstances. There are several instances, however, where this procedure was carried out more than five years ago, with local or wedge excision of a local pulmonary nodule which the pathologists felt to be a metastatic nodule. Nothing further was done, and on extensive study no extra pulmonary primary could be found. Now some five or six years later there has been no evidence of local recurrrence nor has a primary lesion been found elsewhere. All of these lesions have been adenocarcinomas; all have

been in women; and in some there had been definite evidence of continued growth before the lesion was removed.

Radiation Therapy Before Resection

There has been increasing interest of late in the possibilities of irradiation of tumor prior to resection. A number of years ago this combination treatment was tried; but as a discouraging number of cases of poor healing of the bronchial stump were reported, it was discontinued. But there is now renewed interest in this combination treatment, with some favorable results reported. There probably is considerable difference in the amount and type of irradiation now being used, however, and this may account for the difference in the results reported. In some instances, cases considered to be nonresectable before irradiation therapy, have been found to be resectable under this program, but only time will tell how feasible this procedure will prove to be. More interesting perhaps have been the reports of encouraging results in the treatment of superior pulmonary sulcus tumor (Pancoast syndrome), normally a very discouraging condition and usually nonresectable with any hope of cure. Now some favorable results have been reported following preliminary irradiation and later resection; unquestionably the stage of involvement here is a big factor.

Prescalene Lymph Node Dissection

Excision of the prescalene fat pad in the neck, as a diagnostic procedure in sarcoid and some lymphoblastomas has produced a rather high percentage of positive biopsy material: as high as ninety per cent in sarcoid. The percentage of positives obtained, however, in bronchogenic carcinoma is very low, probably not exceeding ten per cent, unless one is dealing with patients in whom mediastinal lymph adenopathy is easily demonstrable, and unless patients are included in whom cervical lymph nodes are palpable. Such excision as a routine preoperative diagnostic measure in primary bronchogenic carcinoma would seem unjustifiable, adding more to the patient's expense and discomfort than to diagnostic information. If positive nodes are obtained on biopsy from the prescalene area, there is probably little to be gained by radical excision of the pulmonary lesion or the mediastinal nodes. It is questionable also whether irradiation of this area of the neck in such circumstances can produce conditions favorable for resection of the lung and mediastinal nodes. Considering the supervoltage radiation now available, this is still a moot question.

Nonsurgical Procedures

If the course of primary bronchogenic carcinoma is too advanced for surgical extirpation clinically or upon exploration, it may be altered to a degree by supervoltage or cobalt irradiation plus chemotherapy of one of several types; but just how much is accomplished thereby in the long run is as yet problematical. For a period of time the tumor masses may seem to shrink or even almost completely disappear on X ray, but the late results are usually unfavorable, the patient dying from metastases or recurrence a few months later. Patients can also be made extremely ill by such combination treatment.

If a patient with lung carcinoma, which is found to be nonresectable upon exploration, or if a patient with a pleural effusion is found to have carcinoma in the pleural cavity, the surgeon will do the patient a distinct favor by obliterating the pleural cavity, keeping the lung expanded postoperatively by continuous removal of all fluid. A persistently recurring pleural effusion under these circumstances is very distressing, necessitating repeated drainage and expense and also depleting the patient's protein reserve.

Summary

Results from the surgical treatment of primary bronchogenic carcinoma are improving but still far from ideal, though comparable to those for carcinoma of the stomach. Ten to twenty per cent five-year survivals are now being reported. Our hope lies in earlier recognition and prompt treatment, using all available methods.

Patients with apparently single pulmonary metastatic malignant lesions are now being presented to the thoracic surgeon in increasing numbers. These patients have two strikes against them from the start; but the situation may not be altogether hopeless. If the metastasis appears considerably later than the primary lesion, and if during a period of two to three months' observation no more lesions appear, and if the original tumor was one of the more favorable groups such as kidney, colon, breast, or other slow-growing type, local excision may be well worth the effort.

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1 Plantar tinea pedis before therapy.

2 After two weeks of therapy.

3 Six weeks later, skin essentially normal (two weeks after termination of therapy).

Clinical considerations: Although clinical studies with griseofulvin have not revealed evidence of serious toxicity, ***side effects***—as with any potent drug or antibiotic—may occur in some patients. An occasional minor decrease in leukocyte count has been observed, which was reversible when medication was discontinued. Occasionally, there may be heartburn, nausea, epigastric discomfort, diarrhea, lethargy, fatigue, psychomotor incoordination and, during the first week of therapy, headache. Studies are in progress to determine the safety of this drug during pregnancy; until the results of these studies are available, griseofulvin is contraindicated during pregnancy. ***Caution*** should be observed in patients with known penicillin-sensitivity. Should urticaria or drug rash develop, the drug should be withdrawn. ***Available*** in 125 mg., 250 mg. and 500 mg. scored tablets, bottles of 60 and 250.

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The Present Status of Thrombolytic Agents



In vivo clot dissolution has long been a dream of clinicians and of investigative workers. Since the introduction of anticoagulant agents, their limitations as therapeutic agents have been recognized. This is particularly true as relates to their effectiveness in preventing arterial thrombosis. Consequently, investigative work has been continuing, especially in recent years, to find an agent that will cause intravascular dissolution of a clot as a more definite form of therapy.

Present-day work on thrombolytic agents is based on the concept that the liquid state of blood is not the result of a passive "accident" but rather the product of a very dynamic equilibrium which exists between clotting of blood and clot dissolution. It is felt that clot dissolution occurs through the mechanism of an agent in the blood plasmin. This is a nonspecific proteolytic enzyme. Plasmin is produced from a precursor called plasminogen at variable rates by means of a plasminogen activator. When plasmin is formed in the circulating blood, it is rapidly inhibited by plasmin inhibitors in order to prevent a state of hypocoagulability from developing. This hypocoagulable state has been found to be associated with an alteration in excretion of urokinase (plasminogen activator) in some diseases associated with an increased bleeding tendency. Indeed, one is closely approaching this hypocoagulable state whenever he uses thrombolytic agents, if he is using them effectively according to current techniques of administration. On the other hand, when the plasmin is formed within the interstices of the clot, the concentration of plasmin inhibitor is much less and the plasmin can then cause effective fibrinolysis and clot dissolution.

Plasminogen activators are known to be present in the tissues, circulating blood, and the urine. It is thought (although not proved) that the activator is produced in the tissues and distributed to the clot via the blood. The urinary product (urokinase) is thought to be the excretory product. The properties of urokinase are such that it is felt to be the most promising candidate for ultimate use as a plasminogen activator. Certain problems relative to purification remain to be solved before it can be used, however.

At the present time, attempts to induce thrombolysis are made through the mechanism of adding plasminogen activators to the above described system. The only activator that has been useful clinically has been a bacterial product, streptokinase. The commercially available preparations are plasmin-streptokinase mixtures, but the active component is the streptokinase. The dosage of streptokinase is determined by first calculating a "priming" dose necessary to overcome the streptokinase antibody in the patient being treated (this may vary almost a thousand fold from patient to patient), and then by calculating a maintenance dose necessary to produce an active, measurable clot-dissolving state in the patient's plasma. It is apparent that this necessitates accurate and detailed laboratory control.

What then should our attitude be at the present time relative to the clinical status of these agents? I would suggest that clot dissolution in vivo is still a dream on a day to day clinical basis. It is certainly a dream that is much nearer to fulfillment than it was a few years ago. In fact, as we all know, it is now an investigative reality and has been for some time, and there

Continued



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does not seem to be much doubt that it will be a clinical reality soon. However, it would seem at the present time that these drugs should be used only by investigators who are familiar with their characteristics and who have the laboratory studies necessary for their control at their disposal.

Consider a few of the problems which arise from this form of therapy at the present time.

1. Currently, the plasminogen activator in use is a product of the streptococcus. Since most individuals have antibodies to streptokinase in variable amounts, this factor must be measured and considered before establishing an initial dosage. Since the antibody titer may vary almost a thousand times from patient to patient, it can be seen that dosage will not be very accurate unless this is done.

2. Another problem related to the above is the question of hypersensitivity reactions to a bacterial product. This is an uncertain factor as yet.

3. It is known that patient resistance to streptokinase increases rapidly as measured by an increasing antibody titer. This reaches a maximum about three months after therapy.

4. If thrombolytic therapy is to be effective, one maintains a significant clot-dissolving state in the plasma. This creates a potential danger of diffuse bleeding. Consequently, understanding of the drug and of the laboratory control is necessary. It should be pointed out that presently available preparations are not assayed uniformly, and that a given dosage of one is not comparable to the same number of units of the other. This necessitates adequate control in administration to assure a significant therapeutic effect.

5. Pyrogenic reactions still occur frequently.

As experience is gained, and as better activators are found, the above problems will be overcome. At that time, an exceedingly useful tool, (possibly comparable to the introduction of adrenal steroids) will be made available to clinicians. However, until then I would prefer to see thrombolytic agents remain as investigational drugs.

B. F. Fuller, M.D.
St. Paul 2, Minnesota

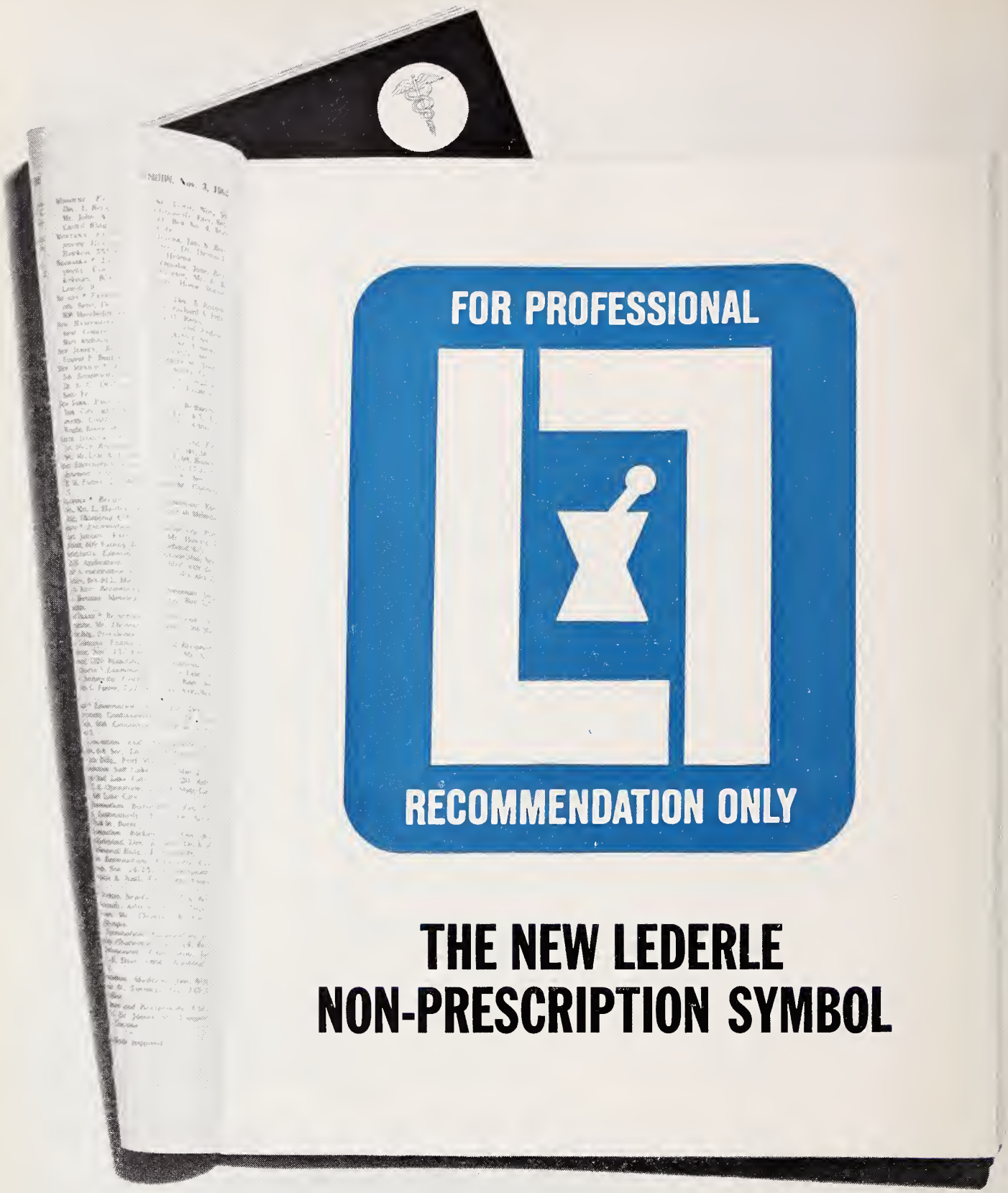
The Cryostat and Rapid Frozen Section Diagnosis

FROZEN SECTION diagnosis by the pathologist at the time of operation has long been accepted as a valuable and even necessary aid to the surgeon in the treatment of disease. This is especially true of neoplastic disease. Combined effort by surgeon and pathologist not only can establish diagnosis, but can be instrumental in deciding the type and extent of treatment. Frozen section diagnosis, in addition, can be very helpful to the surgeon in his dealings with the family and frequently facilitates prompt institution of therapy other than surgery that may be indicated.

The most effective use of these techniques requires close cooperation between surgeon and pathologist with thorough understanding of each others terminology and opinions so that no confusion over diagnosis will result. In the past there has existed an area of confusion and to some extent misunderstanding which has been fed by definite limitations imposed on the pathologist by his equipment, equipment which under some circumstances was incapable of providing preparations of high enough quality to enable the pathologist to give the surgeon the information he desired. It was then necessary for the surgeon to make a more or less arbitrary rather than logical decision. Thorough knowledge of the limitations of frozen section technique and even the individual limitations of each pathologist was almost necessary under certain circumstances. We are indeed fortunate that these circumstances have been profoundly modified by the cryostat.

In the mid 1950's Linderstrom-Lang from the University of Texas determined that cryostat frozen section technique was superior to the more conventional methods then in use. Over the next four years rapid progress in equipment was made, and by late 1960 reasonably priced commercial machines of the open top type were available. Since their introduction, the method has received

Continued



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almost universal acceptance as a superior, indeed almost indispensible, tool in frozen section diagnosis.

The cryostat frozen section microtome derives its name from the Greek word "kryos" meaning icy cold and the word stat meaning stationery. Thus, it identifies an apparatus for maintaining controlled temperatures at low levels. Basically the instrument as now widely utilized consists of a top opening deep freeze unit with accurate temperature control and plastic transparent lid. Located within the deep freeze is a rust proof microtome usually of the rotary type with external controls. The microtome most commonly has an attached anti-roll device. This unique wedding of the conventional rotary microtome at deep freeze temperatures allows one to make thin serial sections of frozen tissues of a quality that compares favorably with the best paraffin techniques. It is the high quality of the section combined with frozen section speed that makes this instrument so valuable to the pathologist in rapid frozen section diagnosis at the time of operation.

Utilizing cryostat techniques the pathologist can now prepare excellent sections of tissues previously impossible or difficult to section. Diagnosis may now be easily based on tiny minute fragments or perhaps serial sections of a single piece or multiple small pieces that formerly could not be prepared satisfactorily, and therefore could not be interpreted. Definite unequivocal diagnosis in these cases is of vital help to the surgeon in making the correct dicision for the individual patient. Guesswork and compromise can be eliminated and definitive treatment instituted.

The pathologist now finds a call for frozen sections on certain tissues a pleasure, when formerly they were at best an unpleasant and in some cases an unresolvable problem. The surgeon is certainly benefited by more extensive and accurate diagnosis with a marked decrease in the percent of "no diagnosis possible by frozen section" or "please wait for permanent section" category. The patient, of course, has benefited most of all.

The cryostat is a very significant and important contribution to our profession and has been responsible for the application of a great deal of healing potion to a wound that has long plagued surgeon and pathologist alike.

E. A. Hanske, M.D.
Minneapolis, Minn.

Doctors' Hobbies

Physicians of this state indulge themselves in many hobbies. Golf, tennis, bridge, and photography are such common avocations that they are scarcely worthy of comment. However, some members of the Minnesota State Medical Association have delved into rare and exceptional nonmedical activities and have become expert in unusual fields. One such physician, Dr. John Grant of Sauk Centre, has pursued two distinctive hobbies. First, he has recently developed an interest in Japanese language and culture, as described elsewhere in this issue by Dorothy M. Bernstein, M.D. See page 487.

With her article MINNESOTA MEDICINE begins a series about doctors' hobbies. Readers of the magazine are invited to submit names of physicians whose, interesting or unusual nonmedical activities are considered newsworthy.

Reuben Berman, M.D.

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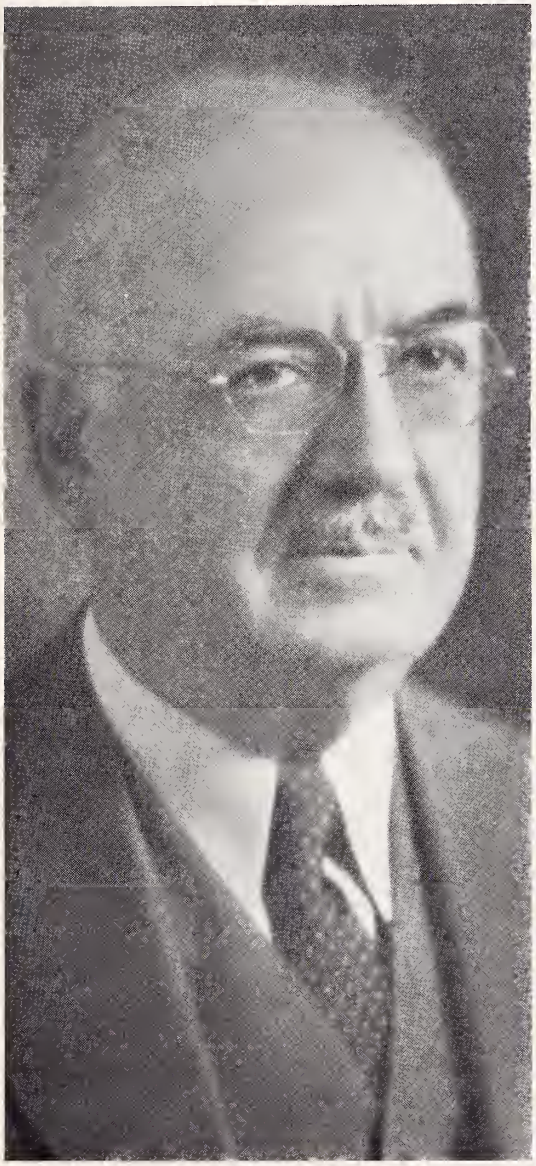
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S. Marx White, M.D.

S. MARX WHITE stands in the middle of a line of physicians, with a grandfather, father and son in the profession.

Dr. Thomas Armstrong, his mother's father, practiced medicine in a small community 70 miles west of Chicago-Sandwich, Illinois. His mother was Amanda Clayana Armstrong, the middle name testifying to the fact that Amanda was born at the time when Henry Clay was a popular public figure. His father, Dr. Solon C. White, graduated from Rush in 1869 and also practiced at Sandwich. S. Marx White was born in Hokah, Minnesota in July 1873. This was in the middle of a

Continued

depression and his father, having temporarily left the practice of medicine, was in the milling business with the White family. Hokah was and still is a tiny community in the southeast corner of the state at the mouth of the Root River, across the Mississippi from LaCrosse, Wisconsin.

In 1883 the family moved to Sandwich, Illinois, where Marx had his high school education. He matriculated at University of Illinois at Champaign in 1891. At that time the entire student body did not quite number 800 students. He entered Northwestern University Medical School in the fall of 1894. He wrote a thesis on "Bacteria in Surgery" and received his B.S. degree in natural history from Illinois in 1896. He was granted the M.D. degree from Northwestern University in 1897 and then took a year and a half of internship at Cook County Hospital in Chicago. Here he came under the influence of the great physicians and surgeons at the turn of the century — Herrick, Sippy, and Billings. He had to leave his internship a month or two early to accept a position at University of Minnesota on December 1, 1898 as demonstrator of pathology and bacteriology under Frank Fairchild Wesbrook, at a salary of $70.00 a month payable 10 months a year. He remained in the department of pathology, which included bacteriology, until 1908.

In 1904 he resolved to become proficient in a clinical field and that year he spent six months studying in Vienna with Neusser, an internist, and Holzknecht and Haudek, roentgenologists. On his return he began part time practice of medicine in Minneapolis, spending an hour or two a day in the office with James Moore, a leading surgeon of that day, and James J. Clark Stewart, a surgical pathologist.

Dr. White married Sarah Miner Abbot, a high school sweetheart of Sandwich, Illinois, in 1900. She was the mother of his three children. No doubt her paroxysmal tachycardia increased S. Marx' lifelong interest in cardiac arrhythria.

In 1906 the family moved from an old home which they rented on Twelfth Avenue southeast to a new home at 424 Walnut Street, about two blocks from what later became the University Hospital. At about this time Dr. White gave up driving his horse and buggy on his professional calls and bought one of the 1906 Franklin automobiles, one of the very early cars in Minneapolis. In 1910 Dr. White purchased a farm on Nine Mile Creek near the Minnesota River, about two miles from the Automobile Club. Here the family lodged during school vacations from June until September, the youngsters running wild in the Minnesota River Valley.

His transfer to the Department of Medicine occurred in 1908, when he was appointed assistant professor of medicine, serving under Dr. Charles Lyman Green, with his contemporaries, George P. Head and Henry Ulrich.

In 1914 he had another stint of European tutelage so popular and necessary for the academic-minded clinician of those days, studying at Allgemeine Krankenhaus in Vienna with Sir Thomas Lewis in London.

In 1914 Dr. White took the whole family to Europe for a six month sojourn. A month was spent in Rome, three months in Vienna, a month in London, and the rest of the time in travel on the continent. The children attended a German school during the months in Vienna at the beginning of this sojourn. During a trip from Chicago by train out of Sandwich, Illinois to visit his and Mrs. White's parents, the $1500.00 in American Express checks which he had just purchased, and on which he had not yet entered the first signature, were lost. They were, therefore, available for anyone who found them to sign and cash, which would have left Dr. White completely without funds to carry on the trip. A telephone call was made to the Burlington Road and within 48 hours the checks were in his hands again, still unsigned. They had been found underneath one of the seats by a passenger and returned to the lost and found department of the railroad.

During this trip war broke out in Europe. While the family was in London their residence was a pension directly across the street from the German embassy, so that during their time in London great crowds of anxious, shouting, gesticulating Germans were in the street below waiting to get into the embassy in order to get out of England and back to Germany. The ship on which return reservations had been made was the first ship to leave England. This was the old Cunarder

Continued

Andqnia which because of the submarine menace took an extreme northern route through the icebergs of the North Atlantic, running up the St. Lawrence River to Quebec and Montreal.

Dr. White was instrumental in bringing the first electrocardiograph to the University of Minnesota in 1915. This was the second such instrument in the State of Minnesota, the first being installed at the Mayo Clinic a few months previously.

He was granted the title of professor of medicine in 1915. In 1917 and 1918 he took time out from his University duties to organize the medical department of the famous Base Hospital 26, a Minnesota unit for World War I. With some of Base Hospital 26 confreres, Angus W. Morrison in neurology, Gilbert Thomas in urology, and Charles A. Reed in orthopedics, along with other leading physicians of that day, he organized the Nicollet Clinic. In 1921 with the removal of Leonard Rountree to the Mayo Clinic, S. Marx White succeeded to the chairmanship of the department of medicine, in which capacity he served until 1925. In order that he might devote more time to the new Nicollet Clinic, he remained as clinical professor at the University until he became emeritus in 1942.

He was an officer or president of the Hennepin County Sanitarium Commission, 1920 to 1956; director of Hennepin County Tuberculosis Association; member of Minnesota State Board of Health, 1919 to 1931, and president from 1926 to 1929; diplomate of the American Board of Internal Medicine; fellow of the American College of Physicians; regent, 1926 to 1935; president 1931 to 1932; member of the American Medical Association, Association of American Physicians, American Heart Association, Minnesota and Hennepin County Medical Society; Minnesota Medical Society president from 1931 to 1932; president of the Minneapolis Society of Internal Medicine, 1950 to 1951; honorary member of Central Interurban Clinical Club in 1932; Central Society for Clinical Investigation, Nu Sigma Nu, Alpha Omega Alpha, Sigma Phi, president of the Community Chest and Council of Hennepin County, 1932 to 1935.

He has received numerous awards, including the St. Barnabas bowl for distinguished service to medicine from the Hennepin County Medical Society in 1952. This was the first St. Barnabas bowl award. He was also rewarded for distinguished service in public health, receiving the Francis Harrington award in 1955. In 1959 he received the award of merit from Northwestern University alumni.

In 1944 he married his present wife, Beulah F. Similkier, and they reside in their present home at 2216 Irving Avenue South. They have lived comfortably and happily since their marriage. Dr. White has remained active and in good health most of these years. He has always been avidly in search of knowledge. His interests have always been broad. His personality has always been outgoing, vigorous, warm, and friendly. He has been noted for his straightforward, fair, and honest dealings in all of his associations. He has been blessed with a keen intellect which has persisted to the present day.

Dr. White's children are Asher A. White, M.D., of the Nicollet Clinic; Elizabeth Rogers, wife of Herbert Rogers, an attorney in Minneapolis; and Mary Grace Coffield of Wilmette, Illinois. Dr. White has seven grandchildren and eight great-grandchildren.

S. Marx White's contribution in medicine has centered or cardiology. His bibliography, spans his output from 1898 to 1959.

A fall and hip fracture have slowed him up somewhat. The fracture has been plated. He is up and around but is no longer engaged in day to day practice of medicine. He is entering his 90th year of life and his 67th year as a physician. He is, in the fulness of his years, admired, respected, and loved as one of the earliest practitioners in this community in the specialty of internal medicine. He has exerted an influence upon all internists. We proudly salute S. Marx White as one of our Senior Educators.

Reuben Berman, M.D.
Minneapolis, Minn.



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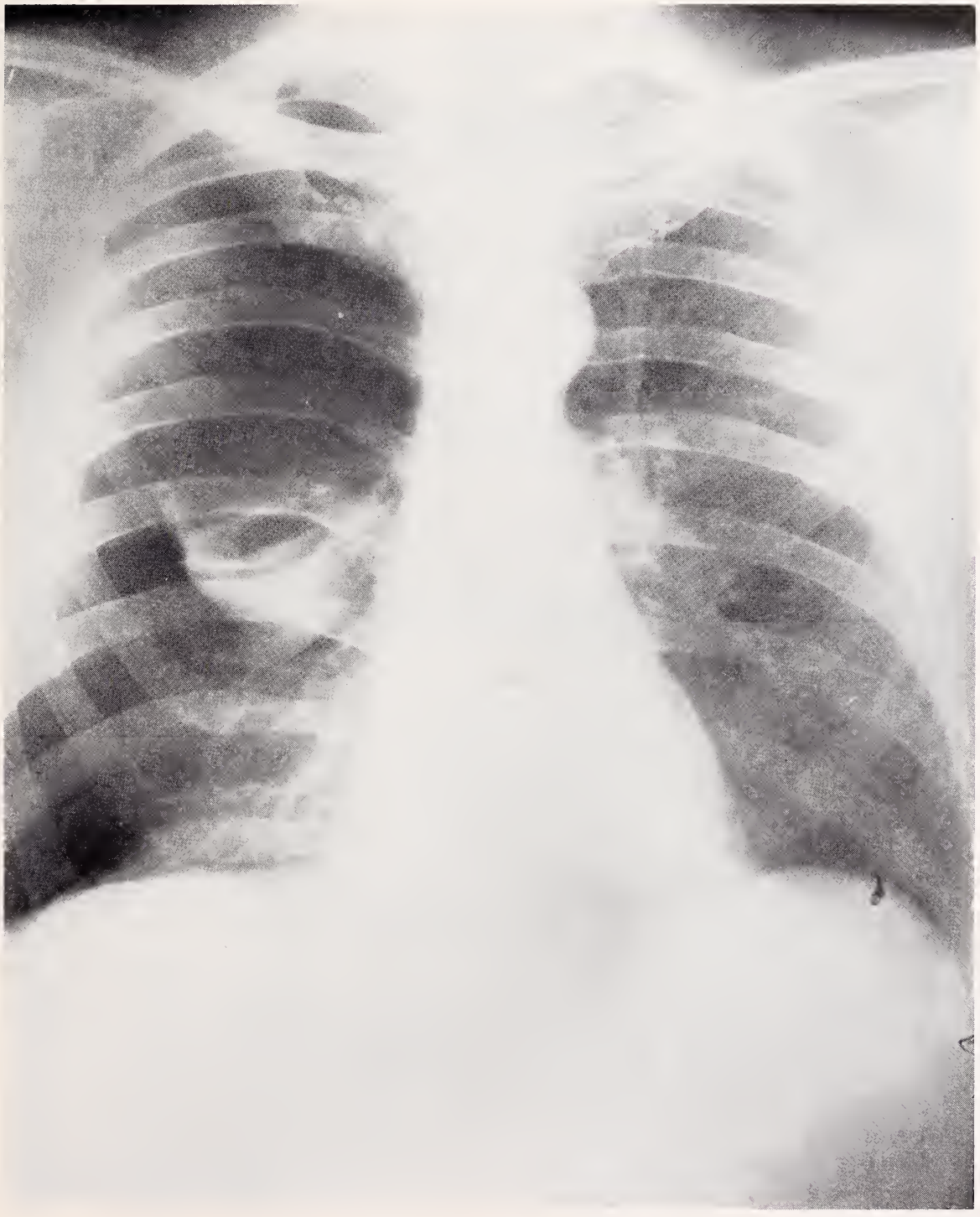
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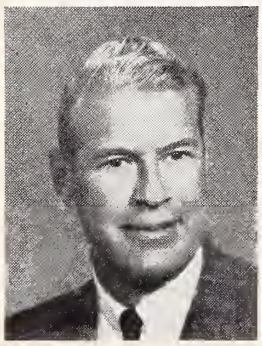
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FRACTURE CONFERENCE

COMMINUTED COLLES' FRACTURES

Complication Following Ulnar Pinning

In the treatment of comminuted Colles' fractures at the Minneapolis General Hospital skeletal fixation has been used only in selected cases, where plaster immobilization has failed to hold the previously obtained reduction. The following case represents a complication following ulnar pinning.





Continued

M.A., A 71-year-old white female incurred bilateral comminuted Colles' fractures and a pelvis fracture when struck by an automobile on November 3, 1960. She was brought to the Minneapolis General Hospital, and after a short period of observation both Colles' fractures were reduced and immobilized in plaster casts under general anesthesia. The X rays were reviewed by the *Fracture Conference* and deemed acceptable. Seven days later X rays were again taken and significant shortening and dorsal tilt of the radial fracture on the right wrist was noted. It was felt that re-reduction and stabilization utilizing two Kirschner wires between the ulna and the distal radial fragments should be used. This was performed under general anesthesia and X rays taken revealed excellent position of the fracture. The wires were left in position incorporated in the cast for two weeks and then removed. The cast on the left arm was removed at six weeks, and on the right arm at eight weeks. Active physical therapy was then begun.

Six months later the patient had obtained excellent finger motion in both hands, and equal dorsiflexion and palmar flexion at the wrists. However, she had only 25 degrees of pronation and 0 degrees of supination of the right wrist, as compared with 90 degrees of supination and 90 degrees of pronation at the left wrist. In spite of conscientious physical therapy, on a follow-up visit two years postoperatively there was no significant change in the functional result. X rays taken at this time revealed a bony bridge to be present along the pin track between the ulna and radius. The patient refused surgery for removal of this bridge.

It has been well established that the end result of simple reduction and immobilization of comminuted Colles' fractures often leaves much to be desired.[1] DePalma in 1952 described a method of fixation of the radial fragments by utilizing a threaded wire, 3/32-inch, passed through the ulna and radius and left in place with the arm in plaster for a minimum of eight weeks.[2] He presented follow-up results in 28 cases with a minimum of complications. Ford, in 1955, expressed the fear that there might be interference with pronation and supination if such a procedure were used.[3] However, Dowling in 1961, with the follow-up of fifty cases so treated found no such complication.[4]

It is purely conjectural whether a better result would have been obtained if no attempt had been made to internally fix this fracture. The lesson to be learned from this case is that satisfactory position of the bony fragments does not necessarily guarantee a satisfactory functional result.

Harrison H. Farley, M.D.
Minneapolis General Hospital

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2. DePalma, A. F.: "Comminuted Fractures of the Distal End of the Radius Treated by Ulnar Pinning," J Bone Joint Surg 34-A; 651-662, July, 1952.
3. Ford, L. T., Key, J. A.: "Present Day Management of Colles' Fractures," J Iowa Med Soc J 45; 324-327, 1955.
4. Dowling, J. J., Sawyer, B. J.: "Comminuted Colles' Fractures," J Bone Joint Surg 43-A; 657-667, July, 1961.

A child's definition of a skeleton: "A skeleton is a man with his inside out and his outside off."

A human being is an ingenious assembly of portable plumbing.—Christopher Morley

Abstracts and Briefs

HYPOTHERMIA IN ACUTE HEMORRHAGIC PANCREATITIS

Acute hemorrhagic pancreatitis was produced in 40 dogs. In eighteen controls there were no survivals. Of 22 dogs treated by hypothermia, four died and 18 survived. Four patients were treated in a fulminating acute hemorrhagic pancreatitis with three survivals. The authors base their reasoning for employment of this procedure on the thesis that enzymatic activity is inhibited by lowering the temperature, and that the major damage occurs from enzymatic digestion.

The experimental observations are certainly valid, at least from a statistical evaluation of the figures alone. Even the survival of three-fourths of the patients treated is impressive. No doubt additional clinical trials will evaluate the usefulness of hypothermia in the treatment of acute hemorrhagic pancreatitis.

J. H. Strickler, M.D.
Minneapolis, Minnesota

Phillip B. Wells and S.A. Taheri, Arch Surg, Vol. 85-Nov. 1962:817

MASSIVE PULMONARY EMBOLISM

The discussion is limited to the recognition and treatment of massive pulmonary embolism. In logical sequence, the condition is defined, the pathologic physiology outlined, and the medical and surgical aspects of therapy presented.

The basic abnormality is embolic obstruction of the blood flow through the pulmonary arteries with secondary reflex and physical impairment of blood oxygenation and cardiac output. The right heart is suddenly burdened with an overwhelming workload and decompensates. The left heart function is burdened by insufficient coronary arterial flow aggravated by an increasing metabolic acidosis from the low cardiac output.

Medical therapy is directed toward supporting the heart by digitalization, dissolution of the embolic clots by enzymes (considered as yet experimental), anticoagulant therapy and general supportive measures of vasopressor agents and high oxygen environment. Unfortunately, the clinical course is usually that of a failing myocardium, hypotension, cyanosis, and death.

A new surgical approach was offered in detail. This is an emergency pulmonary artery embolectomy utilizing extracorporeal circulation. Inferior vena cava ligation is also performed.

This article succinctly reviews the essential features of a complication potentially present in every patient. The new concept of the application of extracorporeal circulation as a method of salvaging life from this disaster is not only fascinating but is an example of the widening scope of this technique.

Jerome T. Grismer, M. D.
Minneapolis, Minn.

Mack, I, Beall, A. C., Griffity, G. C., Rosenberg, D.M.L., and Sampson, J. J. "Panel Discussion at annual meeting of A.C.C.P. 1962" Dis Chest 42:584

CAFFEINE AND STOMACH CANCER

Because caffeine can be mutagenic in certain lower forms of life experimentally, and because the gastric mucosa is exposed to high caffeine concentration in coffee and tea drinkers, the authors decided to try to assess the relationship of gastric cancer to high caffeine ingestion.

Hospital records of 684 patients with gastric carcinoma and 311 patients with colon cancer were reviewed. Of these, 136 and 66 cases respectively had confirmed diagnosis as well as adequate data regarding intake of caffeine containing beverages.

The analysis revealed the two patient groups to be comparable and to not differ significantly with respect to long term caffeine consumption nor do they differ importantly from the general population in these respects. The hypothesis of any relationship of gastric cancer to caffeine consumption was therefore rejected.

"Wow — for a while it looked like the staff room coffee pot would have to go!"

Robert N. Hammerstrom, M.D.
Minneapolis, Minnesota

Goldstein, A., and Warren, R. "Lack of Relationship Between Gastric Carcinoma and Intake of Beverages Containing Caffeine" Cancer 15:1261, Nov.-Nec. 1962.

Continued

LUNG CANCER AND TUBERCULOSIS

The time honored theory that pulmonary tuberculosis and lung cancer are mutually exclusive has suffered some damaging blows of late years. The present author examines the problem of the rising incidence of coexisting tuberculosis and lung cancer, and suggests that it reflects (a) the greater life span of the tuberculous so that they survive into the age group in which cancer is most prevalent; (b) the general increase in the incidence of lung cancer; (c) greater diagnostic acumen, and (d) the shift in incidence of tuberculosis into the older age groups. The best aid in diagnosing cancer in the established case of pulmonary tuberculosis (which admittedly presents difficulties) is a high index of suspicion. If the physician is conscious of the possibility, he will recognize the fairly characteristic roentgen manifestations. These the author outlines, as well as the clinical evidence of lung cancer, and he discusses the relationship of calcified foci of tuberculosis lesions to cancer.

Clinical evaluation is limited to evidence of metastatic involvement: Horner's syndrome, cervical or axillary adenopathy, hepatomegaly, or osseous tenderness and pain. If a patient in the appropriate age group fails to improve on antituberculosis chemotherapy the fact offers a basis for suspicion. Unilateral prominence of the lung hilus rarely occurs in progressive tuberculosis and is a valuable sign of lung cancer which unfortunately is detected in retrospect. Significant also are enlarged paratracheal lymph nodes. Lobar or segmental atelectasis is usually a manifestation of bronchial obstruction. Atelectasis in the lower lobes, other than in the apical segments, often signifies neoplastic obstruction. It also has been noted that atelectasis of the left upper lobe occurs more frequently in carcinoma, and that atelectasis of the posterior apical segment appears more often in tuberculosis. Appearance of a homogenous, round density in a previously uninvolved area of parenchyma is highly suspect. Lack of calcification and an irregular periphery are also points of differentiation. Also to be noted are linear densities in neoplasm and the generally thicker cavity walls. Extension of tuberculosis throughout the lung fields tends to take the form of mottled densities; malignant lesions, on the other hand, tend to coalesce, presenting an image of consolidation. Mediastinal shadows presenting as solid densities usually indicate carcinoma. Confirmation of the diagnosis of cancer in patients wth pulmonary tuberculosis is made by bronchoscopy, cytology, and, in some cases, thoracotomy.

Courtesy of Medical Abstract Service
Berwyn, Illinois

Rosenblatt, Milton B. Clin Med 69:1303-1307 June 1962

LUNG RESECTION FOR TUBERCULOSIS IN CHILDREN

A small proportion of children requires lung resection for significant disease remaining after antimicrobial therapy for tuberculosis. Most of these have primary infection or complications thereof and a few have residual reinfection lesions. Of 1,257 resections performed for pulmonary tuberculosis, 44 were done in children under 16. Two patients had bilateral resection; 25% of the operations were performed for the middle lobe syndrome. There was one early and one late death in the series. Complications occurred in 17%, all but 2 being temporary. The complication rate was low in the group with the middle lobe syndrome. Complications occurred 4 times as often in those with tubercle bacilli in the sputum before operation as in those with negative sputum. Thirty-nine operations were followed by complete recovery. One patient was regarded as improved, but was still under treatment. Two patients died, one of postoperative pulmonary edema and the other of progression of the disease 5½ years after completion of the resection. Most children with primary infection tuberculosis can be cured without operation, but a small percentage requires resection for significant residual disease or for the middle lobe syndrome. Children appear to tolerate pulmonary resection extremely well.

Courtesy of References and Reviews
Journal of the American Medical Association

Quinlan, J., Schaffner, V., and Hiltz, J.
Canad Med Ass J 87:1362 Dec 29 1962

STEROIDS IN TUBERCULOSIS

The purpose of this controlled study is to determine the therapeutic value of steroids given with antituberculosis drugs to patients with moderately advanced pulmonary tuberculosis. In Iraq, most tuberculosis patients are first seen at this stage. Recent publications on the usefulness of steroids in treatment of tuberculosis encourages the authors to investigate their value in the management of moderately advanced pulmonary tuberculosis. A rapid and remarkable clinical improvement, with increased feeling of well-being and gain in weight, was observed in patients taking steroids as compared with those on antituberculosis drugs alone. The clinical improvement was paralleled by improvement in the radiological appearance and a fall in sedimentation rate and in sputum conversion. The value of steroids in far advanced cases is less satisfactory, especially in the elderly.

Courtesy of References and Reviews
Journal of the American Medical Association

Imari, A. J. Dis Chest 42:525 Nov 1962

DRUG RESISTANCE IN TUBERCULOSIS

The majority of tuberculosis patients currently admitted to municipal hospitals in urban areas in the United States are infected with drug-resistant tubercle bacilli. Of importance is the frequency with which such organisms produce disease in others in the community. The available data concerning incidence of drug-resistant tubercle bacilli in newly diagnosed, untreated tuberculous patients were reviewed. The observed incidence varied widely from country to country (from less than 3% to more than 15%), from city to city within the same country, and from one laboratory to another. Data from the same laboratory at times varied from year to year, without any consistent trend. It was concluded that laboratory techniques had markedly influenced the frequency with which drug-resistant organisms were observed, and that no estimate of their current prevalence is possible. One must assume that they may not be rare and that they may become an important public health problem.

Courtesy of References and Reviews
Journal of the American Medical Association

Hobby, G. L. Amer Rev Resp Dis 86:839 Dec 1962

Continued

FARMER'S LUNG

Exposure to unusual quantities of moldy farm dusts occasionally results in disease with distinct clinical, physiological, and pathological features. The characteristic syndrome seen in 73 agricultural workers consisted of chills, fever, and dyspnea within a few hours after exposure to moldy farm dusts and the subsequent development of a diffuse interstitial pneumonitis. Lung biopsies from 8 patients during the subsiding phase of the disease revealed a specific acute granulomatous interstitial pneumonitis. Characteristically, the sections showed epithelioid cells, poorly defined tubercles, and giant cells of the Langhans' type, together with thickening of the alveolar septa which also were infiltrated with plasma cells and lymphocytes. Physiological studies revealed the equally characteristic syndrome of a stiff lung with a reduced diffusing capacity, and non-uniform distribution of regional ventilation and blood flow. The lesion was usually reversible.

Courtesy of References & Reviews
The Journal of the American Medical Association

Rankin, J., Jaeschke, W. H., Callies, Q. C., and Dickie, H. A. Ann Intern Med 57:606 Oct. 1962

STAPH PNEUMONIA

The author studied 176 cases of pneumonia and 35 of empyema. There were 7 deaths, 5 with empyema and 2 without. Early diagnosis on clinical grounds and institution of therapy without awaiting radiological or bacteriological confirmation are necessary to prevent empyema and to reduce the mortality. Cloramphenicol and erythromycin given systemically were generally effective. Antitoxin appeared to be of value. Blood transfusion was used to correct the anemia. Empyema sometimes developed rapidly, and a chest x-ray was required to make the diagnosis. Treatment by immediate closed catheter drainage was effective. Although there has been no significant decrease in number of cases of pneumonia encountered, there have been no deaths since 1958 on the treatment outlined. Pneumatoceles were not uncommon, and all resolved spontaneously.

Courtesy of References and Reviews
Journal of the American Medical Association

Gourlay, R., Canad Med Assn J 87:1101 Nov 24 1962

TRACHEOBRONCHIAL LAVAGE

The authors studied from the experimental and clinical standpoint the use of tracheobronchial lavage with saline as a treatment for atelectasis and aspiration. The experiments carried out were designed to determine the effect of tracheobronchial saline lavage on the mechanical lung functions of lower airway resistance and lung compliance, and to assess the effect of such lavage in the treatment of experimental atelectasis and aspiration of gastric juice and blood.

Experimentally, there was a transient small increase in lower airway resistance which approached normal within one hour with saline lavage alone. There was a presistent decrease in lung compliance, but with assisted ventilation the values more nearly approached normal at 24 hours after lavage.

When a saliva-mucin mixture was instilled into the lower respiratory tree, all animals died of respiratory failure. In contrast, all animals treated by tracheobronchial lavage survived. Airway resistance was greatly lowered by lavage in the treated group and lung compliance was approaching normal levels after 48 hours.

When gastric juice was instilled into the respiratory tree all control animals died within a short period of time. Three of five dogs treated with tracheobronchial lavage survived, and death in the two treated dogs occurred at considerably longer periods of time than those of the controls.

Following instillation of blood into the respiratory tree, all animals quickly developed cyanosis and bradycardia. After treatment with lavage of the respiratory tree, the lower airway resistance was normal at the end of 24 hours. Lung compliance was also normal at 24 hours after lavage in all but one dog.

The authors have treated, by the method, more than 100 patients for various types of pulmonary complications. Assisted ventilation is considered an important part of this program of treatment. Three illustrative reports of patients treated by this method are presented together with the roentgenograms. Saline lavage is felt to be extremely effective in removing thick, tenacious secretions as well as blood from the tracheobronchial tree with restoration of lung mechanics to normal. The authors feel that bronchospasm associated with aspiration of gastric juice can be effectively treated by saline lavage.

The experimental studies are well carried out and very impressive in demonstrating the effectiveness of tracheobronchial saline lavage. The favorable response in the three clinical cases reported was dramatic in each case. A more detailed consideration of the total group of clinical patients treated would have provided a more satisfactory basis for assessing the over-all merits of this program as compared to more conventional methods.

H. D. Kletschka, M. D.
Syracuse, N. Y.

Simenstad, J. O., Galway, C. F., and MacLean, L. D., "The Treatment of Aspiration and Atelectasis by Tracheobronchial Lavage" SG&O 115:721, Dec. 62.

LUNG LIPOMAS

Twenty-five cases of lipoma of the lung comprising a combined total of surgically explored and autopsied patients with lipomas of the bronchus (80%) and lipomas of the pulmonary parenchyma (20%) are reported. An additional rare example of lipoma of the pulmonary parenchyma of a surgically explored patient makes a total of 4 pulmonary parenchymal cases and a grand total of 26 cases reported to date. The roentgenogram studies in every instance were interpreted as bronchogenic carcinoma or suggestive of neoplasm. In none of the surgically explored patients was the true lesion clinically recognized until operative removal had been accomplished. The lesion is predominantly that of men, between the fifth and eighth decades. The right and left upper lungs are involved with greater frequency than the lower; in this, they are statistically similar to malignant neoplasm of the lung.

Courtesy of References and Reviews
Journal of the American Medical Association

Plachta, A., and Hershey, H. Amer Rev Resp Dis 86:912 Dec 1962

Continued

STUD GUN INJURIES

A powder-actuated tool fires a shot by an explosive force. This mechanism, which is that of a firearm, is now being employed with increasing frequency for industrial tools to accomplish certain tasks more quickly with less physical effort. One such tool is the "stud gun," which fires metallic studs to serve as fasteners. Injuries may result from the use of the stud gun earlier by ricocheting of a fired stud or by its actual penetration of a receiving part to become a free flying missile. Two cases are reported—one of a cardiothoracic injury and the other of an abdominal injury with multiple intestinal perforations. The potentially hazardous nature of the powder-actuated tool has not received sufficient attention. The authors emphasize the need for more adequate safeguards to protect the industrial worker and the public.

Courtesy of References and Reviews
Journal of the American Medical Association

Mage, S., Sze, K. C.
New Engl J Med 267:1020 Nov 15 1962

ELECTRIC TOOTHBRUSH

Phaneuf and associates tested the automatic toothbrush under varied conditions as to positioning, pressure, direction of stroke and so on.

The force applied during manual and powered brushing was measured with strain gauges attached to the brushes. For hand brushing the average brushing force was 318 grams, against only 106 grams for powered brushing. The average rate of hand brushing in 22 subjects was 235 strokes per minute. The powered brush was driven at an average speed of 2000 strokes per minute.

There was no evidence of harm to teeth or gums from regular, long-term use. When the gingival tissues were unhealthy, regular use of the automatic brush seemed curative. The cleansing action was found to be more effective than conscientious hand brushing.

Extensive clinical trials should be made of the automatic brush, since it may help improve oral hygiene.

Courtesy of World Wide Abstracts
Excerpta Medica Foundation

Phaneuf, E. A. "Comparison of Stress, Cleansing and Effects in Long Use Regarded as Justifying Full Study"
J Amer Dent Assn 65/1:12-25

PRESSURE CHAMBER THERAPY

Three patients with *Clostridium welchii* infection of the lower limb have been treated by breathing oxygen in a specially constructed pressure chamber at 2 atmospheres absolute. In 2 patients in whom amputation with open flaps was carried out as a primary procedure, the organisms originally present at the amputation site died out within 12 hours. In the third, with extensive injury to the lower limb after a road accident, operation had been confined to the removal of obviously dead and damaged muscle. Inhalation of oxygen at 2 atm was started 18 hours after this operation. Despite this, the patient became worse, so that 3 hours later high amputation was carried out. Complications are loss of protein in dialysis fluid, rare hemorrhage, occasional pain, and occasional alkalosis.

Courtesy of References and Reviews
Journal of the American Medical Association

Smith, G., Sillar, W., Norman, J. N., Ledingham, Mc.A., Bates, E. H., and Scott, A. C. Lancet 2:756 Oct 13 1962

MORTON'S DISEASE

A series of 38 specimens removed from 26 patients who had metatarsalgia were studied. The basic lesion was a progressive post-traumatic sclerosis of the planter interdigital artery, followed by ischemic degeneration and fibrous hyperplasia of its corresponding nerve. A new definition is thus neurovascular fibrosis at the forefoot. The author demonstrated that the vascular lesion was the result of mechanical injury to the vasa vasorum of the artery. A history of acute trauma was present in 47% of the patients. Among those with cronic lesions flat feet were common. Although originally described for the 4th interdigital space, the author found the following localizations: 2nd (9); 3rd (27); 4th (2); 1st interdigital space (none).

Courtesy of References and Reviews
Journal of the American Medical Association

Vandeput, J.
Canad J Surg 6:5 Jan 1963

DRUG ADDICTION

Fifty drug addicts who belonged either to the medical or nursing profession were followed for 2 to 12 years after discharge from hospital. The most serious addictions arose with those drugs controlled by the Dangerous Drugs Acts (DDA). Twenty-eight patients were addicted to these drugs and 22 to other drugs. Not infrequently barbiturates and amphetamines were used concomitantly —the stimulant action of one being suppressed, when necessary, by the sedative effect of the other. A significantly higher proportion of the group addicted to DDA drugs attributed their addiction to persistent physical pain, and a higher proportion of the other group regarded psychiatric illness as the cause of their addiction. Three main criteria were used to give a general impression of the prognosis, (1) whether the further consumption of drugs had taken place, (2) whether further hospitalization had occurred, and (3) whether full working capacity had been reached after discharge from hospital. Of the whole group, 14 never took any more addictive drugs and they could be regarded as totally abstinent, 27 took drugs at intervals, and 9 continuously. There was an appreciable increase in the quantity of drugs consumed in 6 of the 10 patients who had been taking barbiturate and amphetamine drugs at intervals since their discharge. Fifty-two percent of the whole group had been readmitted to hospital for varying periods of time, and almost without exception it had been to a mental hospital. Thirty per cent of the total group continued without interruption at their profession but of these addicted to DDA drugs only 18% have been able to continue; 26% had no gainful employment since discharge from hospital. The advantages of prolonged rehabilitation are discussed, and the advisability of a change of profession is suggested as a possible means of improving the long-term prognosis.

Courtesy of References & Reviews
Journal of the American Medical Association

Clark, J.
J Ment Sci 108:411 July 1962

End

Book Reviews

SYNOPSIS OF GENITOURINARY DISEASES
Dodson and Hill, C. V. Mosby Company, 84 pages-$7.75

This book on genitourinary disease covers the field of some of the more major and commonly observed diseases of the genitourinary tract. This is an excellent reference for the man in general practice who has some special interest in genitourinary disease. It does not cover the entire field of urology, but it is sufficiently inclusive for the physician who wishes to refresh his memory. There are a few x-ray reproductions adequately illustrative of some of the more typical x-ray abnormalities.

It is nicely printed and well bound. It should make a good reference for any physician's library.

Carl O. Rice, M.D.
Minneapolis, Minnesota

BOOKS RECEIVED BY MINNESOTA MEDICINE AVAILABLE IN HENNEPIN COUNTY MEDICAL LIBRARY

Medical Electronics Equipment — Donald A. Smith Robbs-Merrill Co., Inc.; Indianapolis. Price-$6.95.

Financing Medical Care — Helmut Schoeck - Caxton Printers, Ltd.; Caldwell, Idaho. Price-$5.50.

Directory of Approved Internships and Residencies— J.A.M.A. 182 - No. 7 - 1962.

Nursing Home Administration — Gerletti, Crawford, Perkins; U. of So. California, Downey, California.

Hospitals, Doctors, and Dollars — Robert M. Cunningham, W. F. Dodge Corporation, New York.

Health Education — Moss, Southworth, and Reichart — National Education Assn. of the United States, Washington, D.C.

Between Us Women — Laura E. Weber, Doubleday & Co., New York.

Fundamentals of Voluntary Health Care — George B. DeHuszar, Caxton Printers, Caldwell, Idaho.

Planning and Operating Facilities for Crippled Children — Schoenbohm, W. B., Charles C. Thomas, Springfield, Illinois.

CURRENT DIAGNOSIS & TREATMENT, Henry Brainerd; Sheldon Margen; Milton J. Chatton, Lange Medical Publications, Los Altos, California. 843 pages. Price $9.50.

This is a large paperback volume, consisting of 28 chapters, covering essentially the field of general practice. It deals with various diseases in about the proportion that they would be encountered in the field of general practice.

It follows a fairly standard pattern of dealing with each disease by first providing a paragraph of general consideration, then classification, clinical findings, complications, treatment, and prognosis.

In general terms, when medical treatment is indicated, it outlines briefly the type of treatment that should be used, specifying the more commonly indicated drugs.

When surgical treatment is indicated, it does not detail the surgical procedures but recommends in general terms the surgical procedure which is indicated.

In most instances, it is sufficiently specific so that this book can be used as a desk reference in a wide group of diseases.

There are practically no illustrations. However, it is not cluttered with meaningless charts and graphs.

The type faces are a bit too small for comfortable relaxed reading, but for quick reference this is not a serious deficiency.

Carl O. Rice, M.D.
Minneapolis, Minnesota

Medicine is the only profession that labors incessantly to destroy the reason for its own existence. — James Bryce

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Do not take life too seriously; you will never get out of it alive.—Elbert Hubbard



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Curbstone Consultation

Metrecal Dieting

QUESTION: A number of patients seem to have been struck with the idea of using Metrecal as a dietary regime. Can you tell me whether or not this has any particular value over a controlled diet? On reading the label I gain the impression that Metrecal has a high caloric value per gram.

M. D. Minneapolis

ANSWER: The use of Metrecal for weight reduction can probably best be described as a psychological "gimmick." The rational is simply that the prescribed amount of Metrecal each day will supply 900 calories of a balanced formula and that the patient will presumably lose weight if he consumes no foods in addition. There is no real objection to the short term use of Metrecal but it offers no advantage over a controlled diet. Moreover, the long term goal of the obese patient must be maintenance of normal weight rather than a crash program of weight reduction alone and the physician can best serve the patient by re-educating his eating habits so that both goals are attained.

Preoperative Anemia

QUESTION: My patient needs a major operation but his hemoglobin is only 10 grams. At what point is operation deferred? Should the anemia be treated medically or with transfusions in anticipation of surgery?

M.D., Mankato

ANSWER: It is generally advisable to bring the patient's hemoglobin up to normal before subjecting him to major surgery. Whether this should be done with transfusions or by specific hematinics will depend on the cause of the patient's anemia and the urgency of the operation. A word of caution is in order in the use of whole blood transfusions in the elderly patient with a chronic anemia. Since the total blood volume is usually normal, whole blood transfusions may cause overloading of the circulation. In such a patient, if transfusions are used at all, the administration of packed red cells should be considered.

Fibrinous Exudate

QUESTION: I had a patient with pain in the abdomen of only four hours' duration. He had not been feeling well for a few days before that, but pain in the abdomen was of only four hours duration before operation. At operation it was found he had fibrinous exudate along the mesenteric border. The question which concerns me is—How long did it take for this fibrinous exudate to form—could this have developed within the four hours?

M.D., Minneapolis

ANSWER: This question was referred to a pathologist and a surgeon. Both agreed that a fibrinous exudate could develop in four hours, although more information regarding the specific findings at operation would be necessary, to answer the case in question.

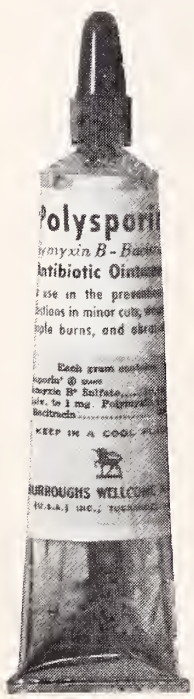
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Doctors' Hobbies

Portrait Of A Physician Off Duty

John Grant, M. D.

"O-hayo Minasan. O-hayo Minasan." A myna bird that says "Good morning, everyone" in Japanese is part of the household of Dr. John Grant, practicing physician of Sauk Centre, Minnesota, who engages in two hobbies that make him a unique figure among physicians of Minnesota: he reads and writes Japanese; he plays, repairs, and builds organs.

Dr. Grant's interest in the Oriental language and culture began to take tangible form in 1958 when he was a patient in a Minneapolis hospital, where, to pass the time, he began to study the Japanese language. By means of books, records, tapes, and other material, he has since continued his studies independently, until he can now write over 1600 Kanji: Japanese symbolic letters. In 1959 the Grants, John and Phyllis, travelled to the Far East and toured Japan. Dr. Grant still corresponds with his Japanese guide and receives local newspapers from him regularly.

In 1961 Dr. and Mrs. Grant added to their home a new wing, architecturally reflecting Japanese decor. There is a bedroom-sitting room with a special Japanese study center containing the library, where readers, grammars, dictionaries from Japan, correspondence from friends in that country, as well as Japanese newspapers and magazines are to be found. Also in this new wing is a Japanese bath, complete with its own screened garden. As building and installing the bath presented many problems, Dr. Grant had to obtain from Japan a textbook on baths, translate it, and adapt the material into a working plan. Equipment had to be designed for intake and outflow of water, and filters had to be added. Since the temperature of the water must be maintained at exactly 106 degrees F., special controls had to be devised and installed. When the controls designed commercially for the bath proved to lack sensitivity, Dr. Grant revised them so that they now work perfectly.

Not to be superseded by his recent pursuit of Japanese language and culture is a long-standing interest in music. Dr. Grant first began to play the piano in grade school. At age eleven, following a bout with poliomyelitis, he was advised to play the organ to strengthen his leg muscles. In his medical student days he played jazz piano regularly as an entertainer to earn his school expenses. Today he serves as organist for his church each Sunday, and plays for other town functions when the occasion demands. Not only is he an expert piano and organ player, but he also builds organs, his first organ being assembled in his family home while he was in high school. In recent years he has completed nine large pipe organs, rebuilt from instruments dismantled in other cities. The first of these, measuring 9x12 feet with pipes up to 16 feet long, was built in his own home in Sauk Centre in 1951 and installed in a room so special as almost to require remodeling of the house around it.

The other eight organ-building projects, all undertaken in spare time, have been for Protestant Episcopal churches of the Diocese of Minnesota. After the pipe organ in his own home was completed, Dr. Grant began an installation in Sauk

Continued

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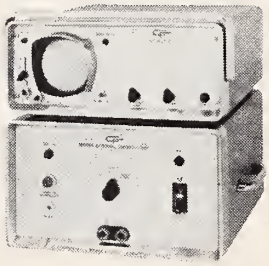
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Centre's Church of the Good Samaritan, which has the largest pipe organ for a city of its size in Minnesota. Dr. Grant's biggest project to date, however, is at St. David's Church at Minnetonka Mills. Begun in 1957 and completed in 1958, it utilized large parts of an organ being dismantled in Duluth. In all of these projects men of the parish have aided by helping to transport the organ parts to Sauk Centre. Rebuilding of the pipes is then done in the Grant's basement, where Dr. Grant solders hundreds of electrical circuits, the parts then being removed to the church, where the electrical apparatus is attached to link the console to the blower, which pumps air into the pipes to produce sound. Sometimes extensive remodeling has to take place at the church to accommodate the huge instrument.

By spending his free time providing musical instruments that the churches could not otherwise afford, Dr. Grant has been able to foster one of his fond dreams — that of promoting better church music. However, building organs has not been his only effort in this direction. In 1957 he helped write THE EPISCOPAL CHOIRMASTER'S HANDBOOK, a musical guide for churches and parishes published each year and now in its sixth edition. In its first year of publication 300 copies were printed; at present it is in use in all fifty states with 2600 copies being printed each year. The profits are utilized to support music projects in the churches.

Currently Dr. Grant plays an electronic organ, his pipe organ having been dismantled to accommodate the Japanese house wing. His most recent hobby is writing arrangements for his teen-age daughter Kathy and her friends who come to the Grant home once a week for a musical "jam session."

Remarkable is this energetic, versatile man who serves his community not only as a capable physician but who in his off duty hours engages in activities rewarding for both their self fulfillment and their social contribution.

DOROTHY M. BERNSTEIN, M.D.
Minneapolis, Minn.

No man quails in any flesh but his own, nor lives by any courage but his own.—Keith Wheeler—The Face of Man

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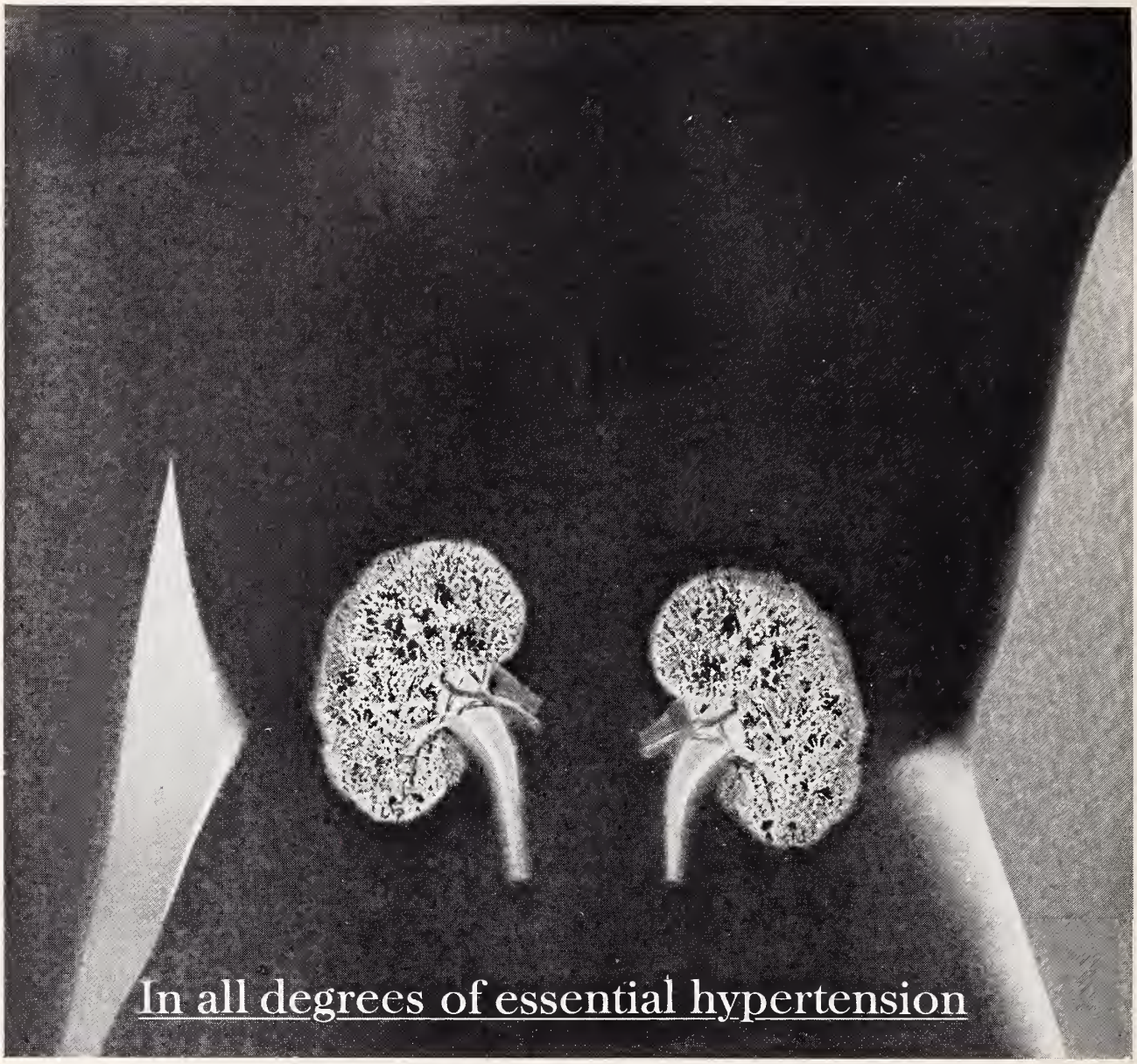
In the realm of observation chance favors only the mind prepared.—Pasteur

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"Don't believe the world owes you a living; the world owes you nothing—it was here first."—Robert Burdette

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What is the difference between a taxidermist and a tax collector? The taxidermist takes only your skin.—Mark Twain



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References: (1) Moyer, J. H., and Heider, C.: Am. J. Cardiol. *9*:920 (June) 1962. (2) Brest, A. N., and Moyer, J. H.: Pennsylvania M. J. *63*:545 (Apr.) 1960. (3) Hutchison, J. C.: Current Therap. Res. *4*:610 (Dec.) 1962. (4) Berry, R. L., and Bray, H. P.: J. Am. Geriatrics Soc. *10*:516 (June) 1962. (5) Feldman, L. H.: North Carolina M. J. *23*:248 (June) 1962.

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Special Events

Annual Meeting Scientific Exhibits Offer Variety

Variety will mark the scientific exhibits which will be on display Monday, May 20, through Wednesday, May 22, at the Duluth Armory in conjunction with the 110th Annual Meeting of the Minnesota State Medical Association.

Included in the display will be the following group of exhibits by the Mayo Clinic and Mayo Foundation: "Preinvasive Carcinoma of the Cervix—Its Early Detection and Management"; "Pulmonary Manifestations of Systemic Diseases"; "Synovectomy of the Knee in Rheumatoid Arthritis—Indications, Technic and Results" and "Vascular Clues to Occult Diseases".

Another entry by the Minneapolis General Hospital Department of Surgery will include the following exhibits: "Acute Angle to Prevent Gastro-esophageal Reflex"; "Refrigerated Primate Kidneys" and "Telescoping Nail in Hip Fractures".

"Gastric Freezing in the Treatment of Duodenal Ulcer" and "A Simple Intestinal Biopsy Procedure for Bedside Diagnosis" are the two entries listed for the University of Minnesota Medical School.

St. Luke's Hospital of Duluth will display the exhibit "Laboratory Diagnosis of Blood Coagulation Defects" and St. Mary's Hospital also of Duluth will display the exhibit "Gross Pathology".

"Foot Manifestations of Systemic Disease" is the title of the entry by a group of physicians of the Swedish and St. Barnabas Hospital teaching service.

Also featured will be exhibits which depict "Early Detection of Cancer of the Cervix", "A New Test for Food Allergy", "Eyeballs, et al", and "The Management of Ocular Emergencics".

Special Events Highlight

American Medical Association's President Doctor George M. Fister, Ogden, Utah, will be an honored Minnesota State Medical Association Annual Meeting guest.

Highlights of special events scheduled for physicians and their wives attending the meeting May 20-22 in Duluth are as follows: *Monday, May 20*—

Minnesota Academy of General Practice—7:30 P.M.—Banquet—Ballroom, Hotel Duluth, preceded by social hour in the Arrowhead Room beginning at 6:30 P.M. Tickets to the banquet are $5.50, gratuity included. The address will be given by Walter H. Judd; his topic will be "What is Ahead for the Doctor?"

Minnesota Society of Clinical Pathologists—9:00 A.M.—5:00 P.M.—Tumor Seminar . . . Northland Country Club (Luncheon at noon) Moderator; Mark C. Wheelock, Northwestern University, 6:30 P.M. — Annual Dinner . . . Northland Country Club.

Minnesota Chapter, American Academy of Pediatrics—12:30 P.M.—Luncheon meeting . . . Northland Country Club.

Women Physicians—12:30 P.M.—Luncheon meeting . . . Kitchi Gammi Club. Janet Lindquist will speak on "Experiences as a Student at the University of West Indies Medical School."

Minnesota Academy of Ophthalmology and Otolaryngology — 6:30 P.M. — Dinner — Kitchi Gammi Club. Speaker will be Lorenz Zimmerman of the Armed Forces Institute of Pathology, Washington, D.C. His subject will be "Pathology of the Eye."

Bridge Tournament—9:00 P.M.—First Duplicate Bridge Tournament — Minnesota State Medical Association—Hotel Duluth. Open to all bridge players, duplicate experience not necessary. Fee: One dollar per person. Trophies will be given.

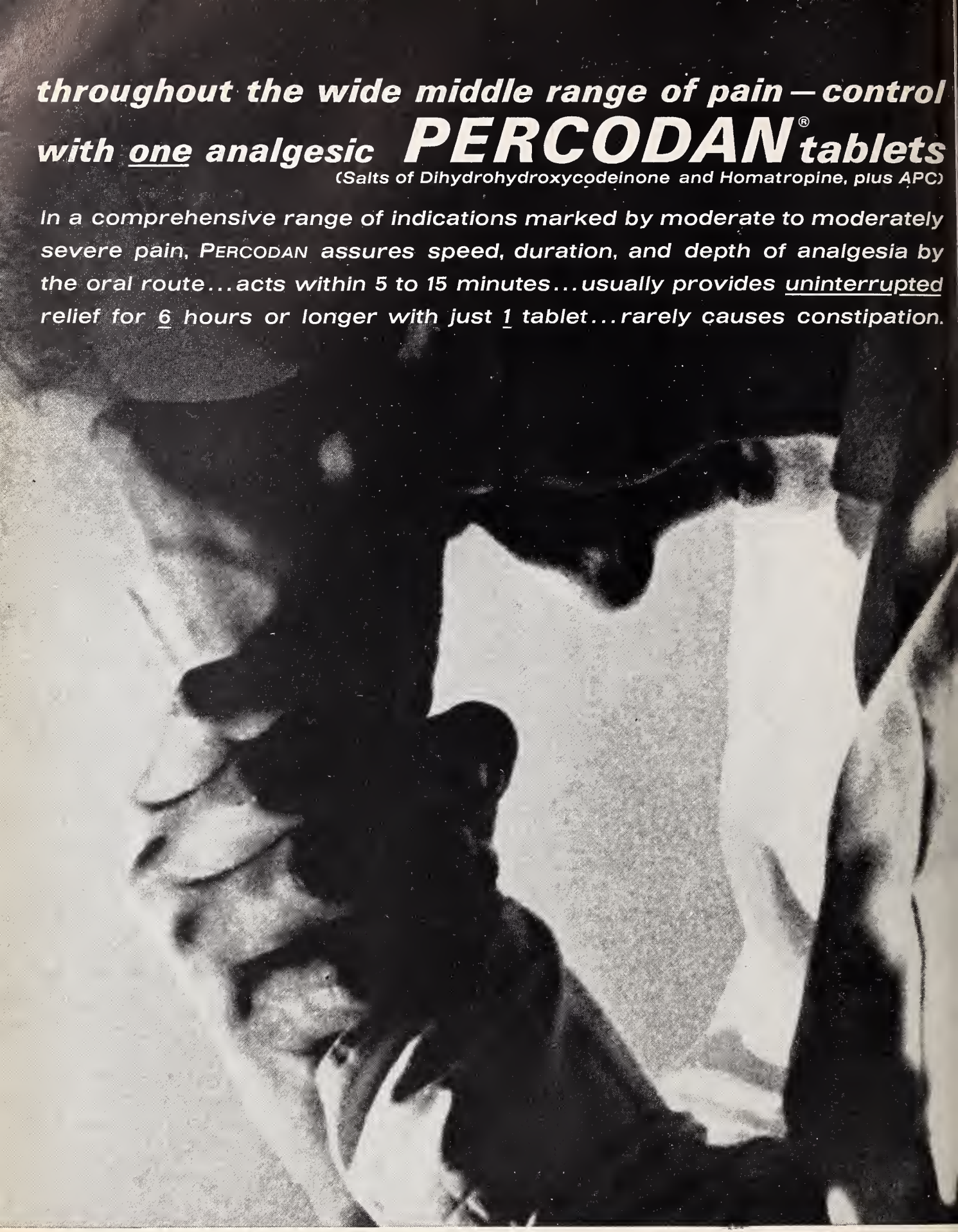
Football Movies — 9:00 P.M. — Football movies, with Fran Tarkenton. Moorish Room, Hotel Duluth. Host, Minnesota Blue Shield.

Tuesday, May 21—Minnesota State Medical Association — 7:00 P.M. — Annual Banquet — Ballroom, Hotel Duluth. Tickets are $7.50, which includes cocktails, dinner, entertainment, late evening buffet and gratuity.

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Formula—Each scored yellow PERCODAN* Tablet contains 4.50 mg. dihydrohydroxycodeinone HCl (Warning: May be habit-forming), 0.38 dihydrohydroxycodeinone terephthalate (Warning: May be habit-forming), 0.38 mg. homatropine terephthalate, 224 mg. acetylsalicylic acid, 160 mg. acetophenetidin, and 32 mg. caffeine. **Also available:** PERCODAN®-DEMI, containing the complete PERCODAN formula but with only half the amount of salts of dihydrohydroxycodeinone and homatropine. Both products are on oral Rx in all states where laws permit. **Average Adult Dose**—1 tablet every 6 hours. **Side Effects and Contraindications**—Although generally well tolerated, PERCODAN may cause nausea, emesis, or constipation in some patients. PERCODAN should be used with caution in patients with known idiosyncrasies to acetylsalicylic acid or acetophenetidin and in those with blood dyscrasias. *Literature on request.* **ENDO LABORATORIES Richmond Hill 18, New York**

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AMA Annual Meeting to Present Top Program in Atlantic City

The 112th Annual Meeting of the American Medical Association will be held June 16-20 in Atlantic City.

An attendance of 15,000 physicians is anticipated.

AMA President George Fister, M.D., said that with "better transportation facilities to Atlantic City and more up-to-date room accommodations, attendance at the '63 meeting should be high."

"Since we last met there," Dr. Fister said, "more than 4,000 new motel rooms have been provided. The auditorium has been renovated, including new escalators and additional floor space. The convention bureau has arranged for a new type of air-land shuttle service between Philadelphia and Atlantic City."

A new feature of the program will be a session on "Physician and Clergy Meet in Patient Care," in which leading clergymen and physicians will discuss their common problems in working with patients. Milford O. Rouse, M.D., of Dallas, is chairman.

The Multiple Discipline Research Forum will be presented again, in which more than 200 short papers will be presented, reporting on original investigation of fundamental problems in medicine. Chairman is Edwin H. Ellison, M.D., of Milwaukee.

The scientific progam will include eight general scientific sessions, dealing with strokes, genetics, cancer, chemotherapy, peptic ulcer, myocardial infarction, backaches, obesity and venereal disease.

The session will mark the 17th time that the AMA has met in Atlantic City since 1900. At the last meetintg there, in 1959, the total attendance was 32,882, including 13,143 physicians.

David B. Allman, M. D., who practiced surgery in Atlantic City for 35 years and is a past president of the AMA (1957-58), is honorary chairman of arrangements. The local chairman is Charles Hyman, M.D.

Scientific sessions of the meeting will be held in the City Auditorium, on the boardwalk facing the Atlantic Ocean. Scientific meeting rooms and industrial exhibits will bc on the boardwalk level of the Auditorium. Scientific exhibits will be on the Auditorium's lower level. A few scientific sessions will be held in hotels near the auditorium.

The Traymore Hotel and the new Colony Motel will be joint headquarters for the meeting. House of Delegates sessions will be held at the Traymore. Woman's Auxiliary headquarters will be the Chalfonte-Haddon Hall Hotel.

A man should choose with careful eye the thing to be remembered by. — R. P. T. Coffin

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A man always has two reasons for doing anything—good reasons and the real reason. —J. P. Morgan

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No matter how important you are, you may get the measles.—Sandburg



WORDS THAT CHARACTERIZE THE MANY DIFFERENT DEPRESSIVE PATIENTS IN WHOM DEXAMYL® CAN BE SO EFFECTIVE

"I feel as though everything in me has slowed down. . . ."

"After all those months, the baby is here and all I do is cry."

"Everything bothers me now, Doctor. I wasn't like this before my menopause. . . ."

"The harder I try to work, the more I get behind. . . . my boss doesn't respect me—my own children don't seem to respect me anymore."

"Now that Dad is gone, I just sit and wait to die."

DEXAMYL® SPANSULE® brand of sustained release capsules

FORMULA: Each 'Spansule' capsule No. 1 contains 10 mg. of Dexedrine® (brand of dextro amphetamine sulfate), and 1 gr. of amobarbital, derivative of barbituric acid [Warning, may be habit forming]. Each 'Spansule' capsule No. 2 contains 15 mg. of 'Dexedrine' (brand of dextro amphetamine sulfate) and 1½ gr. of amobarbital [Warning, may be habit forming]. The active ingredients of the 'Spansule' capsule are so prepared that a therapeutic dose is released promptly and the remaining medication, released gradually and without interruption, sustains the effect for 10 to 12 hours.

INDICATIONS: (1) For mood elevation in depressive states; (2) for control of appetite in overweight.

USUAL DOSAGE: One 'Dexamyl' *Spansule* capsule taken in the morning for 10- to 12-hour effect.

SIDE EFFECTS: Insomnia, excitability and increased motor activity are infrequent and ordinarily mild.

CAUTIONS: Use with caution in patients hypersensitive to sympathomimetics or barbiturates and in coronary or cardiovascular disease or severe hypertension. Excessive use of the amphetamines by unstable individuals may result in a psychological dependence; in these rare instances withdrawal of medication is recommended. It is generally recognized that in pregnant patients all medications should be used cautiously, especially in the first trimester.

SUPPLIED: 'Spansule' capsules No. 1 (1 dot on capsule) and No. 2 (2 dots on capsule), in bottles of 50.
Prescribing information Jan. 1963.

Smith Kline & French Laboratories

Board of Medical Examiners

ST. PAUL MAN POSING AS PSYCHIATRIST SENTENCED FOR BASIC SCIENCE VIOLATION

Re: State of Minnesota vs Robert P. O'Rourke

On March 25th, 1963 Robert P. O'Rourke, 25, 54 Cretin Ave. S., St. Paul was sentenced by the Hon. William D. Gunn, Judge of the District Court of Hennepin County, to a term of one year in the Minneapolis Workhouse pursuant to the defendant's plea of guilty to an information charging him with having engaged in the practice of healing without being registered in the basic sciences. Judge Gunn then suspended the execution of the sentence for one year upon the defendant's good behavior. O'Rourke had also been charged previously with the crime of indecent conduct in connection with the same offense and he pleaded guilty to this charge in Minneapolis Municipal Court on February 14th, 1963, being sentenced on that date to a 30-day suspended sentence and placed on probation for one year. One of the conditions of the defendant's probation was that he take psychiatric treatment.

The defendant was arrested on February 9th, 1963 after he had contacted modeling agencies and dance studios in Minneapolis, under the guise that he was Dr. Nick Miracle, a psychiatrist and personnel director of a movie studio in Culver City, California who was seeking receptionists to take training and work in that city at a salary of $100.00 per week. On February 6th he had interviewed and given intelligence tests to six young ladies at a school for models when he suggested to one of them that she also take the psychology test, which would take about four hours to complete. Late in the day the defendant told the model that they could finish up the test at her apartment over a cup of coffee. However, when she had completed the psychology test he examined her eyes, ears, nose and throat. He then asked her to undress for a physical examination whereupon she became suspicious and avoided complying with his directions by telling him that her roommate would be arriving at the apartment at any minute.

O'Rourke, who has no training in medicine, holds no license to practice any form of healing in the State of Minnesota.

TWO ST. PAUL WOMEN SENTENCED ON ABORTION CHARGE

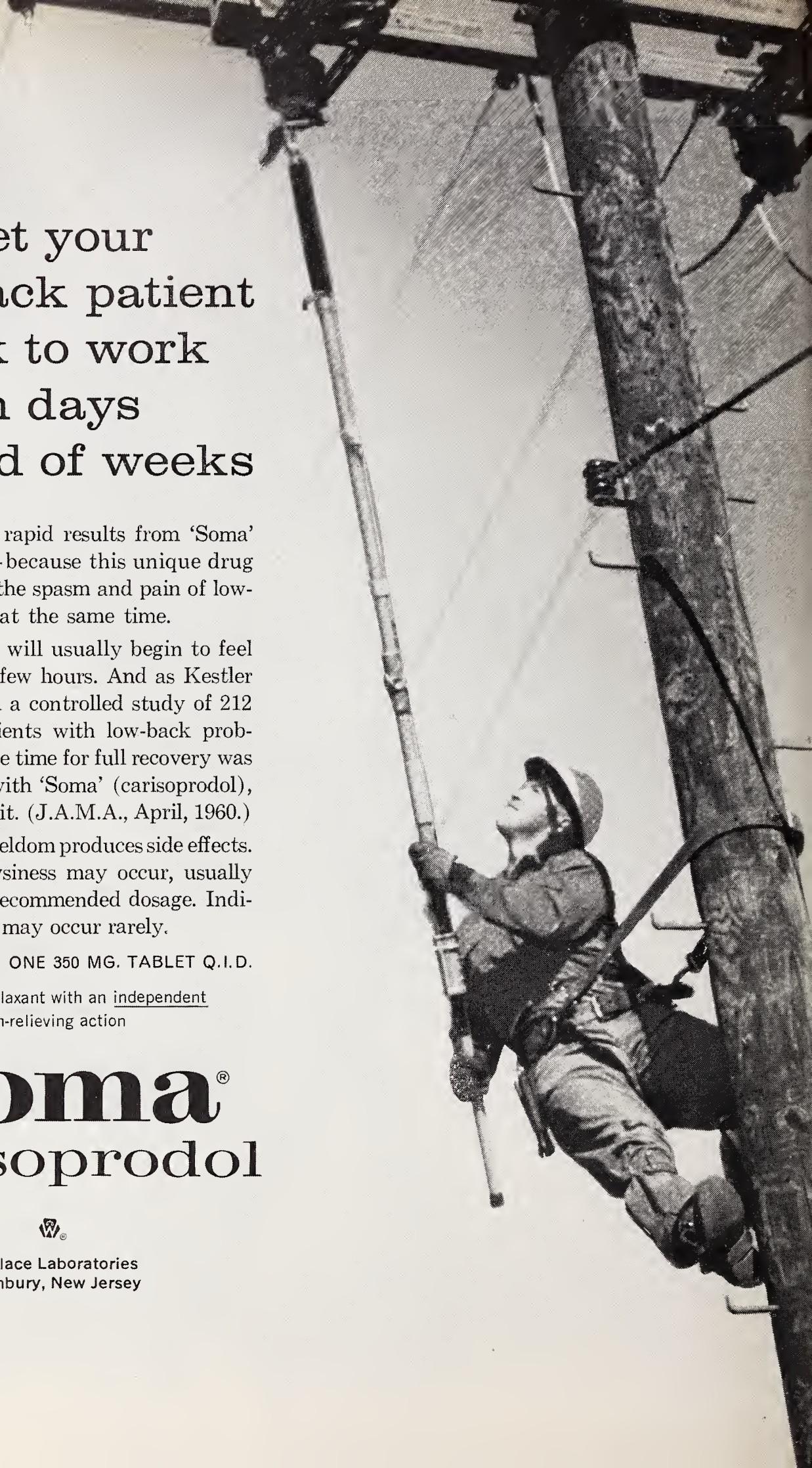
Re: State of Minnesota
-vs-
Katherine H. Pluff and Genevieve C. Claugherty

On March 6th, 1963 Katherine H. Pluff, 47, 891 Sylvan St., St. Paul was sentenced by the Hon. Clayton Parks, Judge of the District Court of Ramsey County, to a term of two years in the State Reformatory for Women at Shakopee, Minnesota, pursuant to her plea of guilty before Judge Parks on January 29th, 1963 to an information charging her with the crime of abortion. However, the Court then immediately stayed the execution of the sentence for two years and placed the defendant on probation for the same period of time. Mrs. Pluff had previously appeared in court for sentencing on February 20th, 1963, but Judge Parks was not satisfied at that time that she was giving truthful answers in response to questions asked of her by the Court, whereupon she was committed to the Ramsey County Jail where she remained until March 6th. The defendant Claugherty, 49, 1581-B Jessamine Lane, St. Paul had previously been sentenced on January 21st, 1963 for the same crime by the Hon. Edward D. Mulally, Judge of the District Court of Ramsey County, to a term of not to exceed four years in the State Reformatory for Women, the execution of the sentence being stayed for four years, however, and the defendant placed on probation for the same period of time.

The defendants were arrested after a 24-year-old married woman, who was very ill after submitting to an abortion, was hospitalized at Ancker Hospital in St. Paul on October 2nd, 1962. The investigation, which was conducted jointly by the St. Paul Police Department and the Minnesota State Board of Medical Examiners, disclosed that the woman became aware of her pregnant condition in August 1962 and discussed the matter with a woman acquaintance, informing her that she would like to locate an abortionist. As a result of this conversation the defendant Claugherty was contacted by telephone and she indicated that Mrs. Pluff would perform an abortion for a fee of $200.00, but that she was temporarily out of the city. Upon Mrs. Pluff's return to St. Paul on September 21st the arrangements for the abortion were completed and that evening she and the defendant Claugherty came to the pregnant woman's home. When $200.00

Continued

Get your low-back patient back to work in days instead of weeks



You can expect rapid results from 'Soma' (carisoprodol)—because this unique drug breaks up both the spasm and pain of low-back syndrome at the same time.

Your patients will usually begin to feel better within a few hours. And as Kestler demonstrated in a controlled study of 212 consecutive patients with low-back problems: the average time for full recovery was only 11.5 days with 'Soma' (carisoprodol), 41 days without it. (J.A.M.A., April, 1960.)

Carisoprodol seldom produces side effects. Occasional drowsiness may occur, usually at higher than recommended dosage. Individual reactions may occur rarely.

USUAL DOSAGE: ONE 350 MG. TABLET Q.I.D.

The muscle relaxant with an independent pain-relieving action

Soma®
carisoprodol

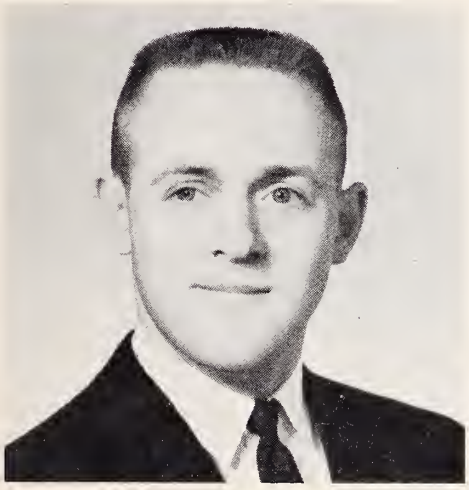
Wallace Laboratories
Cranbury, New Jersey

in cash had been paid to Mrs. Pluff she inserted a catheter and, after telling the woman to remove the catheter in approximately twenty-four hours, both Pluff and Claugherty left. When the woman had not aborted six days later, Mrs. Pluff repeated the procedure and after the patient was hospitalized she expelled the fetus.

Neither of the defendants holds a license to practice any form of healing in the State of Minnesota. When Mrs. Pluff was questioned by Judge Parks in regard to her education she stated that she attended high school but she did not indicate that she has received any medical training. The defendant Pluff has one prior conviction, having been convicted on November 18th, 1948 in United States District Court in St. Paul of the offense of receiving stolen property.

Minnesota State Board of Medical Examiners
J. P. Medelman, M. D., Secy.

RURAL MEDICAL SCHOLARSHIP FOR 1962-63 AWARDED



Roland Roy Larter
Rural Medical Scholarship Recipient

Roland Roy Larter, Lancaster, Minnesota, a University of Minnesota Medical School Freshman, has been named as the recipient of the 1962-63 Rural Medical Scholarship, awarded annually by the Minnesota State Medical Association to an outstanding freshman medical student.

As recipient of the Rural Medical Scholarship, Mr. Larter will receive $1,000 a year for each of the four years of medical school. In return, he has agreed to practice medicine for a period of at least five years in a rural Minnesota community in need of a physician.

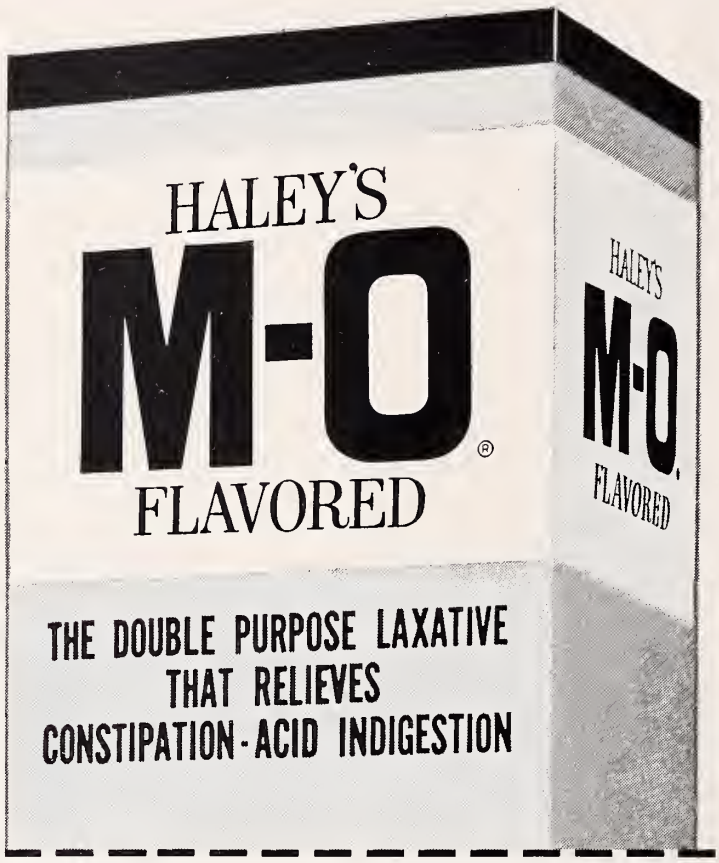
Mr. Larter is the son of Mr. and Mrs. Bud Larter of Lancaster. He graduated from the public schools of that community in 1957. In 1960 he received a Bachelor of Science Degree, with distinction, from the College of Agriculture, Forestry and Home Economics of the University of Minnesota. He then attended graduate school for one year where he earned his masters before entering medical school in the fall of 1962.

Previous recipients of the Rural Medical Scholarship include: Dr. Richard Engwall, Winthrop (currently practicing in Tyler); Dr. Leland Christenson, Marshall (currently practicing in Maple Plain; Dr. Myron Doebler, Princeton (currently practicing in Bagley); Dr. Carl Christenson, Staunchfield (currently practicing in Clinton); Dr. Vincent Hunt, Anoka (currently practicing in Red Lake Falls); and Dr. LeRoy Mueller, Belle Plaine, who is interning at Bethesda Hospital in St. Paul.

Recipients still attending medical school include: George Gerstenkorn, Belgrade; Donald Asp, Milaca; Elton Wing, Jackson; and Charles Benjamin, Hutchinson.

End

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1 PT., 1 QT.

Antacid–Laxative–Lubricant to help correct constipation

Magnesium Hydroxide plus pure mineral oil make *Haley's M-O* a smooth working antacid-laxative-lubricant that efficaciously relieves constipation and attendant gastric hyperacidity.

The oil globules in *Haley's M-O* are minutely subdivided to assure uniform distribution and thorough mixture with intestinal contents. Oil leakage is thus avoided and a comfortable evacuation is effected through the stimulation of normal intestinal rhythm and blunted defecation reflex.

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The Blue Shield

A Solution For -- A Doctor's Dilemma

A new service to doctors eliminating some trouble areas regarding payment of fees and the patients' financial responsibilities is now being introduced by Blue Shield of Minnesota.

The effort has evolved after considerable discussions with doctors, who have repeatedly indicated their willingness to discuss fees and services with their patients. They have also expressed willingness to discuss the patient's income when Blue Shield coverage is involved.

Many, however, find it difficult or are reluctant to initiate such discussion, either because they have not worked out the mechanics of such a discussion or because they regard it as a responsibility resting entirely with the patient.

Yet treatment of the pocketbook is a part of treatment of the whole case.

Doctors who routinely introduce financial matters when the patient's need for care is disclosed are firm in the belief that they thus help to maintain the best possible doctor-patient relationship.

They recognize the need to talk about financial matters because:

1. The patient may be reluctant to bring up money matters since he may feel that it might offend the doctor or because he fears that his concern with charges will influence the quality of the medical care he will receive.
2. The patient may be so concerned with his present illness that the matter of cost is temporarily forgotten.
3. For lack of understanding, the patient may simply assume that, no matter what his income, if he has Blue Shield coverage that Blue Shield of Minnesota will pay the fee for everything.

The doctors who neglect or refuse to clarify the matter of fees and responsibility for payment are candidates for the greatest number of complaints about charges. Those who tackle the problem at the first opportunity report that they have few complaints. Most of the difficulty in talking about responsibility of payment and fees is in introducing the subject and following through with appropriate discussion.

To assist the doctor in dealing with Blue Shield subscribers, Blue Shield has prepared a four-page brochure explaining the income provisions of Blue Shield contracts and the obligations of the patient. The brochure contains an application to be completed and signed by the subscriber. This brochure, which may be given to the patient, should provide a standardized approach and greatly reduce clerical effort and inconvenience for the doctor and his office staff.

In many offices, information regarding Blue Shield coverage and fees is well-handled by the doctor's office assistant. The doctor can instruct her with respect to his fees, and the Blue Shield Professional Relations representative can give her full information on the method of reporting services. She can also consult the representative whenever she finds it necessary. It is perhaps easier for the office assistant or the secretary, than for the doctor to query the patient, since it is frequently she who obtains personal identifying data from the patient, collects fees, issues receipts and handles other business aspects of the doctor's practice.

When she has ascertained that the patient carries Blue Shield coverage, she can easily ask to see his subscriber identification card. From the card she will be able to determine under which Blue Shield plan the subscriber is enrolled. If the patient is below income, he then can be asked to complete the application for "Service Benefits." If the subscriber is above income, and on the instruction of the doctor, she can tell the patient that if the doctor's charge exceeds the Blue Shield benefit, the balance is his responsibility. In some of these cases she may have to tell the patient that the doctor may make additional charges for office calls, since such service is not covered by Blue Shield.

Should the doctor feel that a particular patient's statement of income is inaccurate, he may request a notarized affidavit of earnings. This includes the earnings of each member of the immediate family for the 12 months preceding the date of service. If the doctor on reviewing the affidavit is doubtful of the veracity of the statements contained therein, Blue Shield will employ the services of an investigating agency to check further.

The need for such measures will not arise frequently. In general, when the doctor manifests trust in the patient and employs a frank approach, the patient tends to respond with equal frankness. This is even more true when these discussions take place before the services are rendered. The doctor whose usual fees are in excess of those listed in the Blue Shield fee schedule and who fails to present, in advance of treatment, a clear picture of the patient's financial obligation, particularly when Blue Shield coverage is involved, does the patient a disservice and at the same time undermines the patient's faith in the voluntary system for prepayment of medical care.

End

Question:

"What is a tranquilaxant?"

Answer:

"A drug that is both a tranquilizer and a muscle relaxant."

TRANCOPAL®
brand of
chlormezanone
is a tranquilaxant

As a tranquilizer, TRANCOPAL (chlormezanone/Winthrop) "is effective in the symptomatic treatment of anxiety."[1] Its tranquilizing properties are similar to those of other mild tranquilizers.[1] Furthermore, it relieves tension of both mind and muscle without interfering with normal activity or alertness.

The muscle relaxant properties[2] of this drug provide an extra dimension of effectiveness... relaxing the spasm which so frequently accompanies psychogenic disorders. Hence, the total therapeutic effect of TRANCOPAL (chlormezanone/Winthrop)—a true "tranquilaxant"—is to produce a relaxed mind in a relaxed body.

Unsurpassed Tolerance: Less than 3 per cent of patients develop side effects with TRANCOPAL (chlormezanone/Winthrop), such as occasional drowsiness, dizziness, flushing, nausea, depression, weakness and drug rash. If severe, medication should be discontinued. In most patients, however, side effects are minor and do not necessitate interruption of treatment. There are no known contraindications.

Available: 200 mg. Caplets® (green colored, scored), 100 mg. Caplets (peach colored, scored), each in bottles of 100.

Dosage: Adults, 1 Caplet (200 mg.) three or four times daily; in some patients 100 mg. three or four times daily suffices. Children (5 to 12 years), from 50 to 100 mg. three or four times daily.

Winthrop
WINTHROP LABORATORIES
New York 18, N.Y.

References: 1. A.M.A. Council on Drugs: J.A.M.A. 183:469 (Feb. 9) 1963. 2. Gruenberg, F.: Curr. Ther. Res. 2:1 (Jan.) 1960.

1783M

In Memoriam

NELS O. SANDVEN

Dr. Nels O. Sandven, 80, well-known Paynesville physician, died February 23, after a long illness. He was born in Webster County, Iowa and received his degree in medicine from the Illinois Medical School.

He was a member of the Sons of Norway, the Eastern Star and a fifty-year Mason. Dr. Sandven served on the Paynesville School Board, was president of the Library Board, serving on the Vestry of St. Stephen's Church in Paynesville, and was on the staff of the St. Cloud and Paynesville Community Hospitals. A life and 50 Club member of the Minnesota State Medical Association and Stearns-Benton County Society, Dr. Sandven was also a member of the American Medical Association.

He is survived by a daughter and a son.

JULIAN F. DU BOIS

Dr. Julian F. DuBois, 75, Sauk Centre physician, died March 31st. He was born at Sauk Centre and received his medical degree from Rush Medical College of the University of Chicago.

He was president of the National Federation of Medical Licensure in 1948, named "Citizen of the Year" by Sauk Centre in 1953, helped organize the Sauk Centre Rotary Club, served as president of the School Board, was a director of the First State Bank, and was secretary in 1937 of the Minnesota State Board of Medical Examiners. Dr. DuBois was a member of the Stearns-Benton Medical Society, Minnesota State Medical Association and American Medical Association. He received a distinguished service award from the Minnesota State Medical Association in 1953.

He is survived by his wife, a daughter, and a son, Dr. Julian F. DuBois, Jr.

DE WITT HOWARD GARLOCK

Dr. Dewitt Howard Garlock, 74, Bemidji physician and surgeon for 20 years, died March 9th, at Redlands, California after an illness of several months.

He was born at Alden, Minnesota and received his medical degree from Rush Medical College of the University of Chicago.

During his residence in Bemidji, he was a member of the Lutheran hospital staff, a member of the Bemidji State college board, the Ralph Gracie Post of the American Legion, Civic and Commerce director, past president of the Rotary Club, member of Bemidji Lodge No. 233 A.F. & A.M. and the First Presbyterian church. He was formerly a member of the Upper Mississippi Medical Society and the Minnesota State Medical Association.

He is survived by his wife, a daughter, and two sons, one of whom is Dr. Grant Garlock of Ventura, California.

ROBERT S. ANDREWS

Dr. Robert S. Andrews, 69, practitioner in Minneapolis, died March 8th en route to Cassville, Wisconsin. He was born at Hampton, Iowa and received his degree in medicine from the Johns Hopkins University at Baltimore, Maryland.

Dr. Andrews was a member of the staff of Swedish hospital, and a member of the Hennepin County Medical Society, Minnesota State Medical Association and the American Medical Association.

He is survived by his wife, two sons and three daughters.

SHARE YOUR MEDICAL JOURNALS

The doctors of the U.S.A. are being asked to send their medical journals—after they have read them—to colleagues overseas (Asia, Latin America, and Africa) who wish to have access to current medical literature but, either because of currency regulations or actual cost involved, cannot themselves subscribe to medical periodicals. We can supply you with the name, address, and medical specialty of doctors in these areas who would be happy to receive these much wanted journals, particularly specialty journals.

This is a direct "Doctor-to-Doctor" program which is being promoted by the United States Committee of The World Medical Association to help alleviate the lack of current medical publications and to further international good will. Your cooperation in this program will be greatly appreciated and your contact with these colleagues in other countries, we can assure you, will prove very gratifying. If you wish to participate in this program, send your name, address, and titles of journals you will contribute to United States Committee, The World Medical Association, 10 Columbus Circle, New York 19, New York.—(New York State Journal of Medicine.)

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AMERICAN MEDICAL ASSOCIATION

112TH ANNUAL MEETING

JUNE 16 - 20

Along Atlantic City's famed seaside boardwalk, take the big step toward a complete medical "refresher."

The world's foremost investigative talent—latest advances in general practice—newest tools and techniques—hundreds of topflight exhibits—all in one compact, comprehensive five-day session—**to help you bring to your patients the best that medicine has to offer.**

It's all in Atlantic City—and it's all for YOU!

See **JAMA May 4 for complete scientific program, hotel accommodations and advance registration forms**

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Meetings and Announcements

MAY

MINNESOTA STATE MEDICAL ASSOCIATION Annual Meeting, May 20-22, Duluth. Contact: Harold W. Brunn, Exec. Secy., 496 Lowry Medical Arts Bldg., St. Paul.

University of Colorado Medical School postgraduate course "Thirteenth Annual Intern-Resident Clinics" May 23-24 in Denver. Contact: University.

Fifteenth Annual Clinical Conference Chicago Ophthalmological Society, May 24-25, Drake Hotel, Chicago. Contact: Charles Barrett, M.D.; 636 Church Street; Evanston, Illinois.

Medical Library Association Conference, May 30-June 3, Philadelphia, Pa. Contact: Medical Library Association, 919 No. Michigan, Chicago.

American College of Physicians postgraduate course, May 20-24, "Physiological Aspects of Cardiopulmonary Disease" Indiana University Medical Center, Indianapolis, Ind.

JUNE

American College of Chest Physicians Annual Meeting, Ambassador Hotel, Atlantic City, June 13-17. Contact: Murray Kornfeld; 112 East Chestnut; Chicago.

AMA Annual Meeting, June 16-20, Convention Hall, Atlantic City. Contact: AMA, Chicago.

INTERNATIONAL Congress on Education of the Deaf, Gallaudet College, Washington 2, D.C., June 22-28. Write: Executive Secretary; Gallaudet College, Washington D.C.

Society of Nuclear Medicine 10th Annual Meeting, Queen Elizabeth Hotel, Montreal, Canada, June 26-29. Write: Samuel Turiel; 333 N. Michigan Ave.; Chicago.

Second International Congress on Medical Librarianship, June 16-22; Washington, D.C. Write: Ruth MacDonald; National Library of Medicine; Bethesda, Maryland.

Academy of Psychosomatic Medicine Second Symposium on "Anxiety and Depression," Marlborough Blenheim Hotel; Atlantic City, N. J. June 15-16. Contact: Wilfred Dorfman, M.D.; 1921 Newkirk Avenue; Brooklyn, New York.

AMA Multiple Discipline Research Forum June 18-20, Atlantic City. Contact: AMA, Chicago.

JULY

Summer Camp for Diabetic Children, July 14-August 4, Holiday Home, Lake Geneva, Wisconsin. Contact: Diabetes Association; 620 North Michigan; Chicago.

Fifth International Conference on Medical Electronics, July 22-26. Liege, Belgium. Contact: F. Bostem, M.D.; 23 Boulevard Frere Orban; Liege, Belgium.

Fifth International Postgraduate Course in Reconstructive Surgery; July 14-27, University of Leiden, The Netherlands. Write: Prof. Dr. H.A.E. van Di-shoeck; University of Leiden; Academisch Ziekenhuis, Leiden; The Netherlands of American Rhinologic Society in Chicago.

Second International Conference on Congenital Malformations July 15-19, Americana Hotel, New York. Write: National Foundation; 800 Second Avenue; New York.

17th Annual Rocky Mountain Cancer Conference, July 12-13, Brown Palace Hotel, Denver, Colorado. Write: Rocky Mountain Cancer Conference; 1809 E. 18th Avenue; Denver, Colorado.

University of Colorado Postgraduate Course on Ophthalmology, June 30-July 5, Colorado Springs, Colorado. Course on Obstetrics and Gynecology July 8-10 and one on Dermatology July 18-20. Contact: University.

ANNOUNCEMENTS

American College of Physicians Postgraduate Courses: June 3- 7—"International Medicine; Current Physiological Concepts in Diagnosis and Treatment." University of Cincinnati, Cincinnati, Ohio. June 10-14—"Current Topics in Internal Medicine," State University of Iowa, Iowa City, Iowa. June 24-28—"The Psychosomatic Illness," University of Colorado, Denver, Colorado. Contact: Edward Rosenow, M.D., American College of Physicians; 4200 Pine Street; Philadelphia.

* * *

University of Minnesota medical continuation courses: May 27-29 Psychiatry, June 3-5 Anesthesiology. For further information write 1342 Mayo Memorial, University of Minnesota, Minneapolis.

* * *

Applications for certification in the American Board of Obstetrics and Gynecology must be submitted by July 1, accompanied by current duplicate lists of patient dismissals for the preceding twelve months. Contact: Robert Faulkner, M.D., American Board of Obstetrics and Gynecology; 2105 Adelbert Road; Cleveland.

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for mild, continuous sedation

Each tablet (or capsule) contains 16 mg. phenobarbital blended with 65 mg. Bensulfoid®. The Bensulfoid is an inert diluent present to permit slow absorption of the phenobarbital. The usual dosage is one tablet or capsule after meals and at bedtime. Solfoton is especially adapted to prolonged use because of its virtual freedom from depression and other side effects. Contra-indications: identical to those of ¼ gr. phenobarbital.

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Poythress, White Section, Page 808 (1963 edition) and Product Identification Section

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Dispensed in bottles of 100 and 500 tablets or capsules

WM. P. POYTHRESS & COMPANY, INC., RICHMOND, VIRGINIA

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Physician's Diary

Dr. Alexander Edward Brown, member of the staff of the Mayo Clinic, has retired from active practice. He and Mrs. Brown will leave Rochester to reside in Cortez, Florida.

* * *

Dr. C. Walton Lillehei, University of Minnesota surgery professor and a pioneer in open heart surgery, was awarded the American College of Cardiology's Susan and Theodore Communings humanitarian award for "inspired teaching of cardiology."

* * *

Dr. Robert Sturges of Minneapolis has been named chief-of-staff and **Dr. George R. Martin,** chief-elect, of Fairview Hospital. **Dr. John H. Glaeser** was named secretary, and **Dr. Donald Amatuzio,** treasurer.

* * *

Dr. Arthur L. Weaver, Mayo Clinic, was recently awarded a $1,000 Mead Johnson residency scholarship.

* * *

New Locations: Dr. Rex Johnson has become associated with **Dr. Joseph W. Burnett** of New Ulm . . . **Dr. Wilfrid Pinsonneault** plans to leave Stephen Medical Center for Drayton, North Dakota . . . **Dr. James Nakamura** will leave Deer River to take up his duties on the staff of the Pelican Rapids hospital . . . **Dr. W. T. Smith** will be associated with **Dr. W. C. Bernstein** in the Lowry Medical Arts in St. Paul . . . **Dr. J. J. Scherek** joined the staff of **Drs. Frank Quattlebaum** and **Jane Hodgson** in St. Paul.

* * *

Dr. F. H. Baumgartner of Albany attended the meeting of the American Academy of General Practice in Chicago recently . . . **Dr. Jack V. Wallinga** of Minneapolis recently attended the meeting of the American Orthopsychiatric Association in Washington, D. C. where he presented papers on "Mental Health Consultation" and "Stress as a Social Problem in Residential Treatment." . . .**Dr. Milton Reiser,** Professor of Urology at the University of Minnesota, was guest speaker at the meeting of the Range Medical Society. His subject was "Management of Acute Renal Failure."

Dr. Wesley W. Spink, Professor of Medicine at the University of Minnesota Medical School, recently was installed as the new president of the American College of Physicians.

* * *

Dr. Collin S. Mac Carty, member of the Section of Neurologic Surgery of the Mayo Clinic, has been named general chairman of the Mayo Centennial which will be celebrated throughout 1964.

* * *

Dr. Arthur M. Antonow of Virginia was recently named Fellow of the American College of Obstetricians and Gynecologists.

* * *

Dr. W. H. Valentine, Tracy Physician, was elected president emeritus of the Lyon County Tuberculosis and Health Advisory Council, and **Dr. Harold Flanagan** of St. Paul was elected to the college board of St. Thomas College of St. Paul.

* * *

Dr. Jan H. Tillisch, Mayo Clinic, has been elected to the executive committee of the American Medical Association's Council of Occupational Health, and **Dr. John G. Mayne,** Mayo Clinic, was named a regional program consultant to the National Foundation March of Dimes organization.

* * *

Dr. James Myhre, Minneapolis internist, was guest speaker of the Southwestern Minnesota Medical Society's meeting recently. His speech dealt with "Irritable Bowel."

* * *

Mayo Clinic announced the appointment of five consultants to the staff: **Dr. Douglas T. Coles, Dr. Stewart L. Nunn, Dr. Richard E. Sedlack, Dr. Ralph D. Ellefson** and **Dr. Joachim L. Opitz.**

* * *

Dr. Donald Muhich, psychiatrist-director of the Range Mental Health Center, was on the faculty of the annual Community Psychiatry Workshop at Kansas City, Missouri, in March.

* * *

Dr. Ormond S. Culp, Mayo, was elected vice president of the Clinical Society of Genito-Urinary Surgeons at the recent meeting of the society in Kansas City, Kansas.

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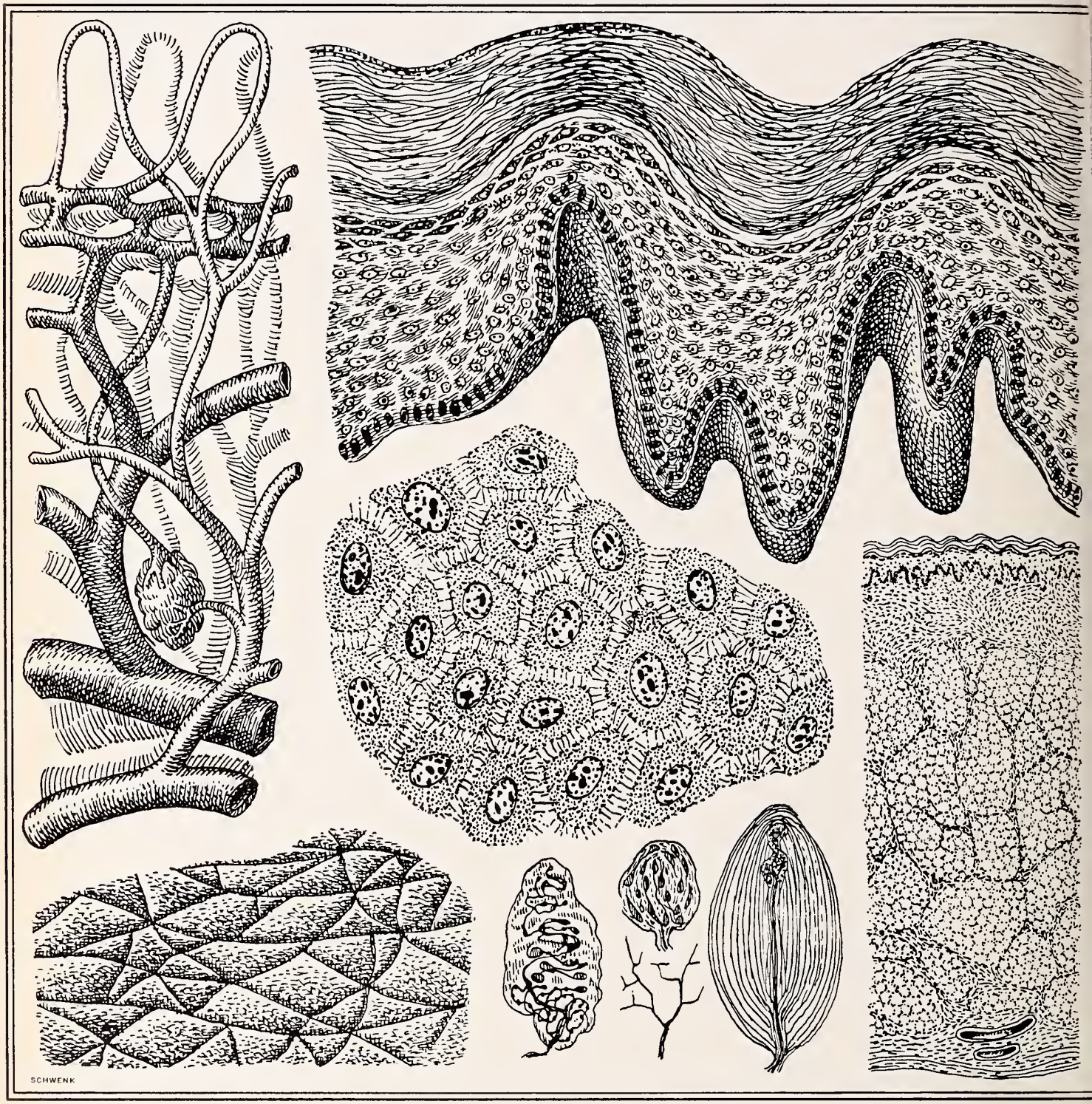
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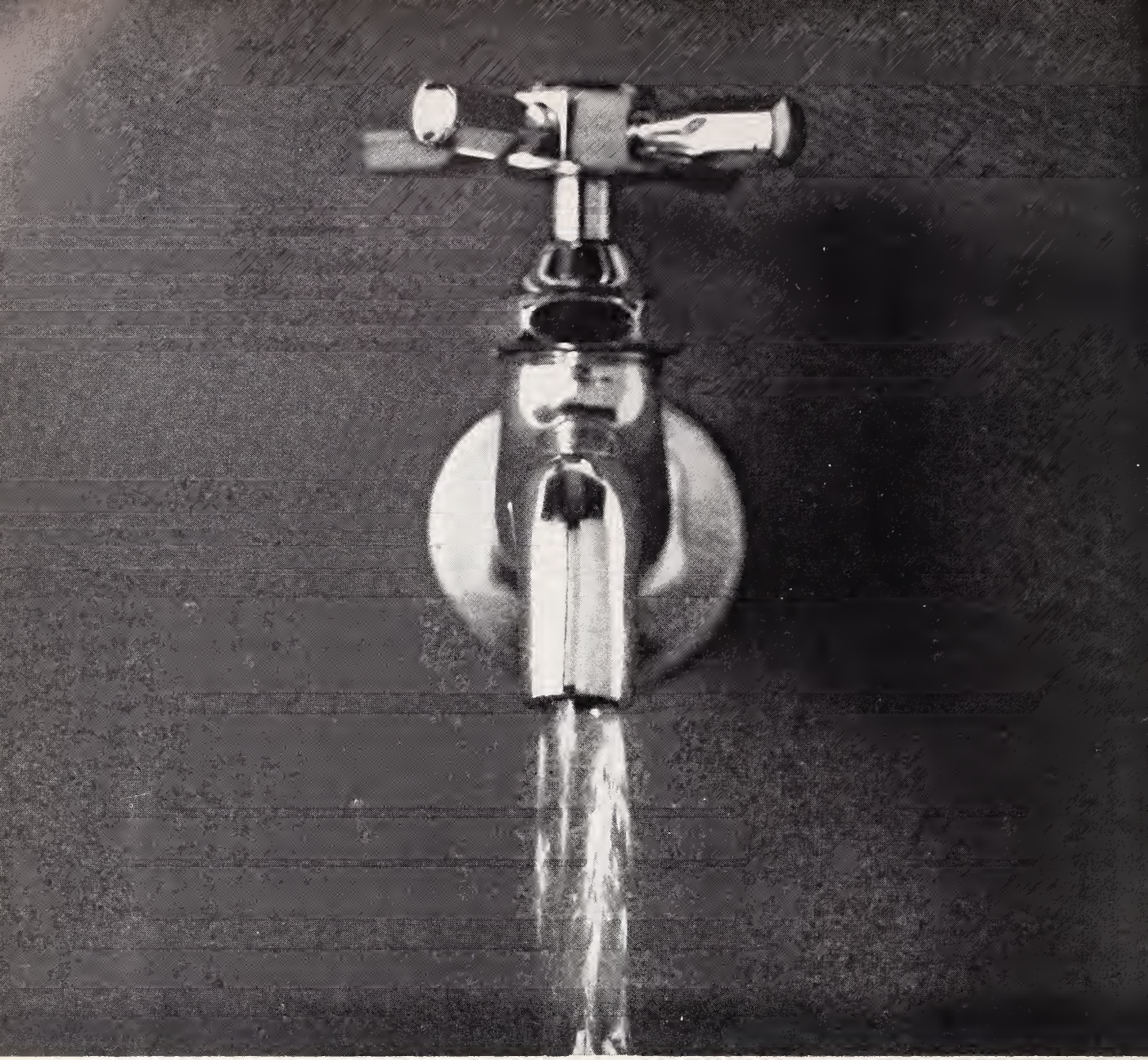
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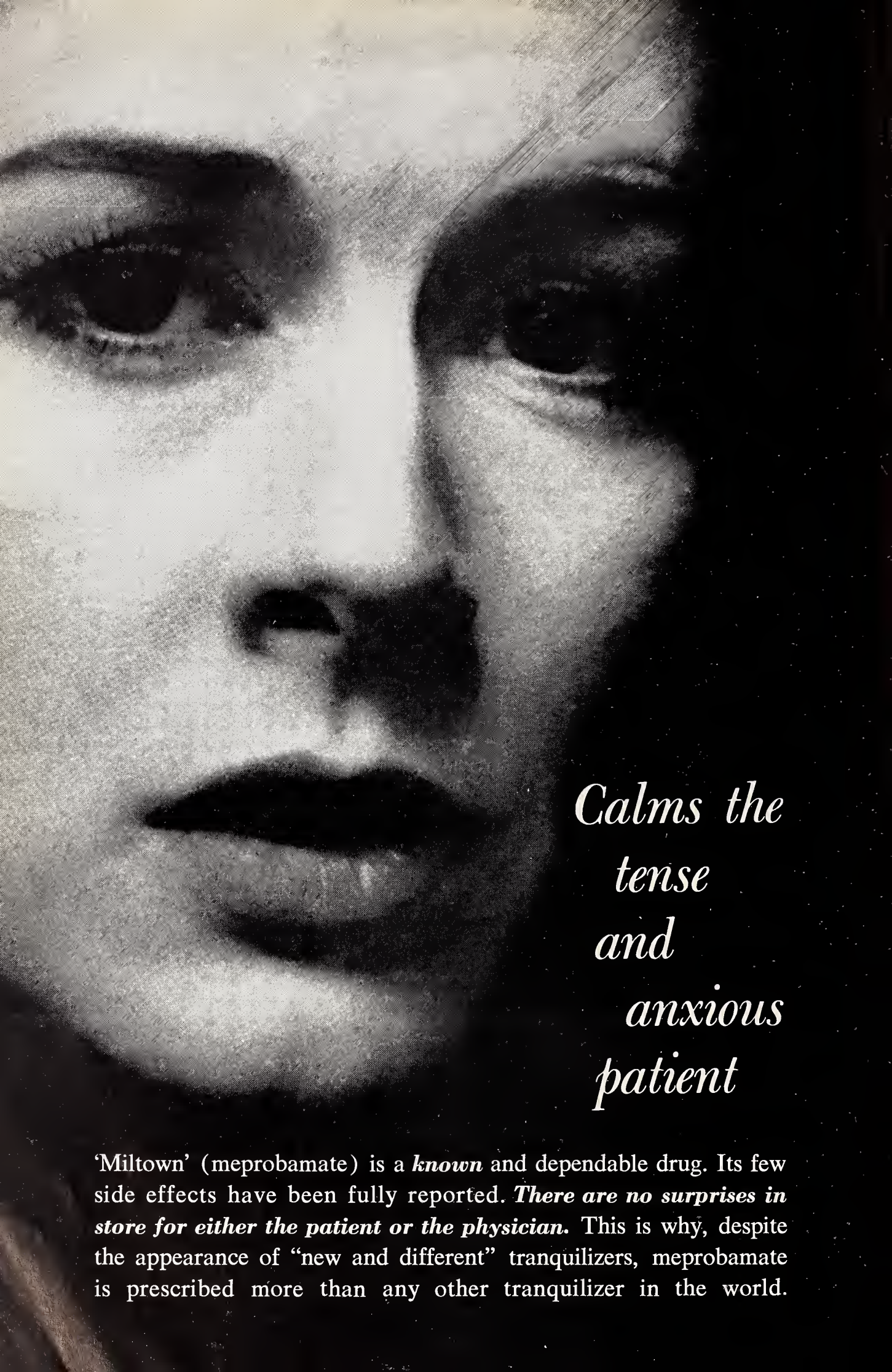
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Cover Photo:
The recipient of the 1963 Minnesota State Medical Association Distingnished Service Award was Dr. Charles W. Mayo. Accepting the award for his father at the annual banquet in Duluth was Dr. Charles H. Mayo, II, third from left. Others present are Drs. J. P. Medelman, St. Paul, President-elect; Robert P. Buckley, Duluth, Ninth District Councilor and Chairman of the Council; and J. C. Feuling, Duluth, local arrangements chairman.
Photo: Courtesy of the Duluth Herald-News Tribune

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Medicine

une, 1963

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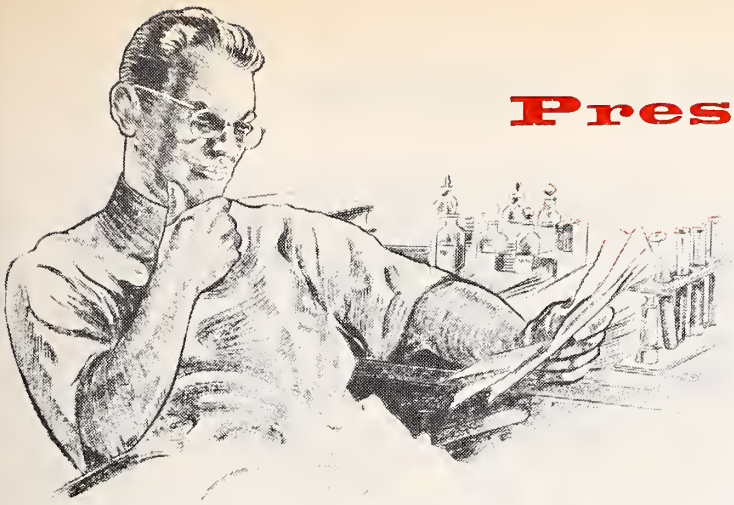
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President's Letter

The need for planning of health facilities of all types on a community-wide basis is daily becoming more apparent to everyone making a study of this subject.

The construction of new hospitals and other health activities without an over-all community plan may well result in over building or in the location of such facilities without regard to the total needs of the community both present and future.

When this occurs there is not only a waste of funds required for construction and equipment, but also poor utilization of many categories of personnel trained for specific positions which are in short supply such as operating room and central supply supervisors, anesthetists, clinical laboratory technicians as well as pathologists and radiologists.

New projects for health facilities should be initiated only after a detailed survey of the needs of the entire community. Such a survey should include not only present population but all foreseeable trends of growth. It should include data as to the economic base of the community and its ability not only to pay for the proposed construction and equipment but also its adequacy to provide income sufficient for maintenance and operating expenses. The survey must obviously include facilities currently in operation and the effect of the proposed construction upon such already existing activities.

Basically the survey must include all facets of the community needs and of the community resources available to meet the objectives. In the final analysis the community, which has to provide the money for new construction and for the continued maintenance and operation when completed, must be assured that such hospitals or other facilities are needed and that a proper standard of operation can be maintained. The community must also be assured that over building will not result with consequent waste of community funds.

A number of communities throughout the states are forming Hospital Planning Councils with the objective of coping with these problems.

The Metropolitan-St. Paul Planning Council was organized in March, 1962. A similar planning body is currently getting underway in Minneapolis to serve not only the city but the suburban areas adjacent. The State Health Department has helped to establish the Lake Region Planning Council, serving the area around Fergus Falls and hopes to establish similar councils in the Duluth-Superior area, the Iron Range, and the Albert Lea areas.

As these councils become active we as physicians should take an active part in their activities. In so doing we must at all times keep in mind the objective of providing better hospital care for more people with the greatest reasonable economy. Facilities must be provided not only in the larger centers but in the smaller communities as well.

In his excellent article in the Minneapolis Tribune of March 2, Mr. Victor Cohn quotes Mr. James A. Hamilton, Professor of Hospital Administration at the University of Minnesota as follows: "A regional planning body is now a must, but it must promote as well as prohibit. It must recognize individual freedom. It can't just prohibit.

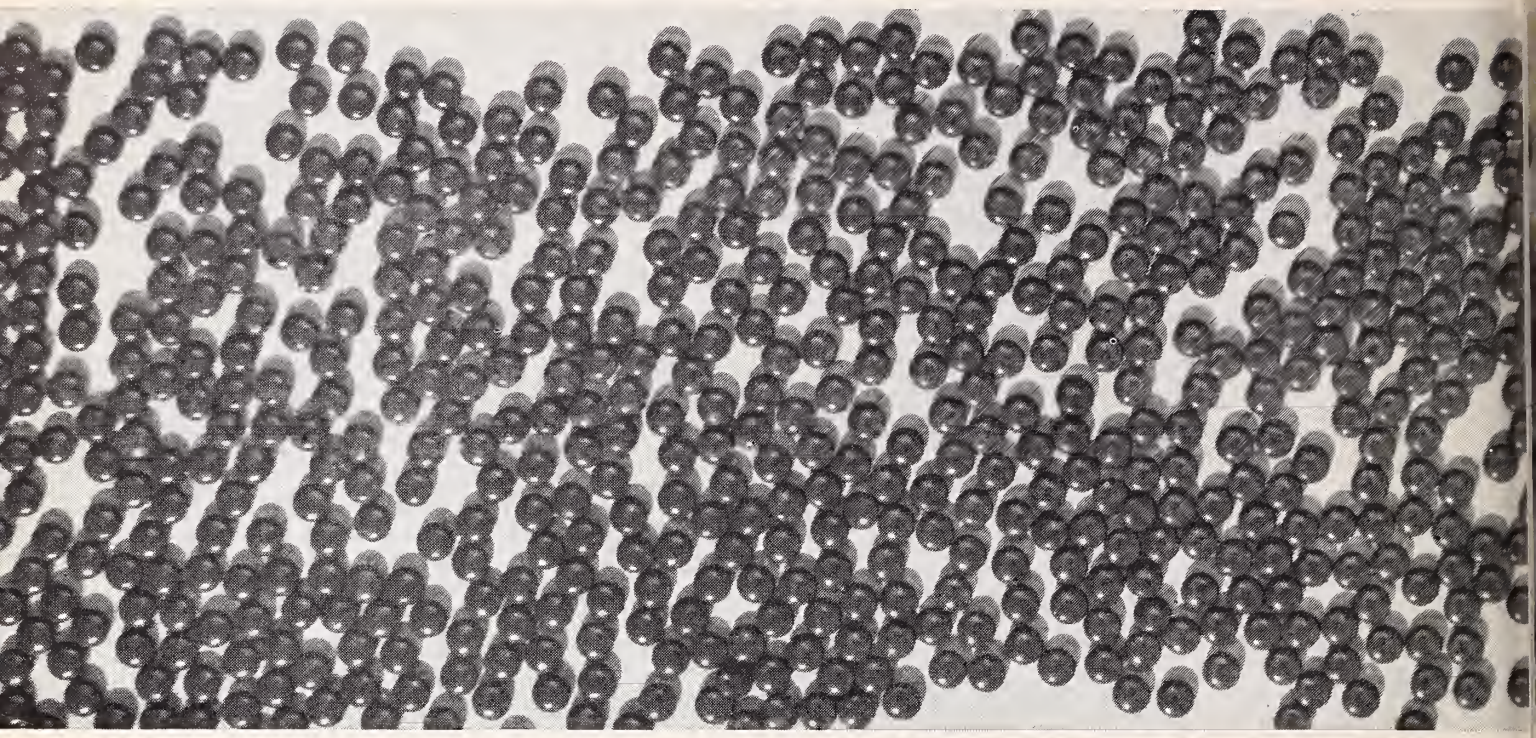
"It must make sure the area continues to have enough beds and this includes meeting the legitimate needs of the suburbs. If it does not do this, if it does not keep ahead of the needs, it will fail."

Let us all lend our support and to the extent possible our guidance to these efforts.

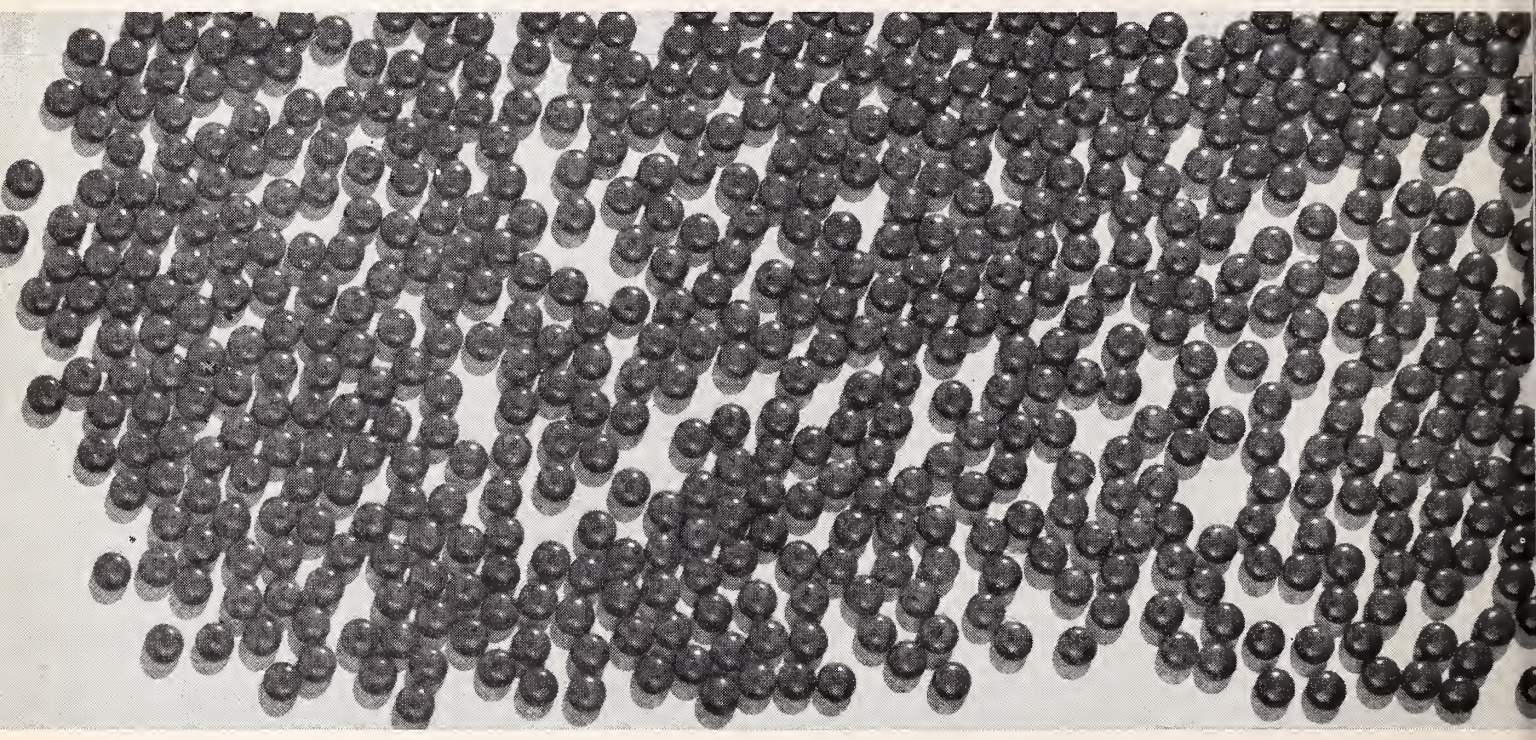
Donald McCarthy

Minnesota State Medical Association
President
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Vitamin B6 in Seizures of Infancy

The present view of relationship of B6 to the ocurrence of infantile seizures is presented. Clinicians in general practice caring for children and infants will benefit from this information and useful report.

KENNETH F. SWAIMAN,* M.D.
Minneapolis, Minn.

THE NATURAL occurrence of Vitamin B6 deficiency in man was unknown until the reports in 1953 of a peculiar epidemic of seizure activity in infants ingesting a particular proprietary infant formula.

In 1934 Gyorgy discovered Vitamin B6 activity while investigating the components of the so-called Vitamin B complex.[1]

In 1943 Daniel, Kline and Tolle demonstrated the effects of B6 deficiency in newborn rats,[2] which were made B6-deficient by depriving their mothers of B6 during gestation and continuing a deficient diet after birth. In addition, newborn rats of normally fed mothers were deprived of B6 intake. In both groups the newborn rats developed irritability and seizures, with death finally ensuing after an 11 to 16-day period.

In 1953 Snyderman, Holt, Caretero, and Jacobs reported that they had studied deficiency in humans by depriving two retarded newborn children of B6.[3] One child developed seizures after 76 days, and the other developed a peculiar type of microcytic anemia, but no seizures. Both the seizures and the anemia responded to B6 administration.

B6 Deficiency

Between 1951 and 1953, an estimated three per thousand children fed on an artificial milk formula developed seizures.[4] The clinical picture manifested by these children was well-documented in several articles, including those by Coursin,[5] and also Molony and Parmelee.[6] Briefly, these infants were irritable and jumpy. They finally sustained spells of body stiffening, staring, head extension, eye rolling, and generalized tonic-clonic seizures, which lasted two to three minutes. However, the infants appeared to recover from these episodes rather quickly. The time of onset of these spells ranged from the sixth to the 16th week of life.

Several physicians noted that they could halt these seizures by changing the infants' formula, and their information finally reached the desk of

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Dr. O. L. Kline of the U. S. Food and Drug Administration.[4] After a very brief review of the facts, and in view of his previous experiments with newborn rats,[2] he deduced correctly that Vitamin B6 deficiency was the underlying cause of this perplexing clinical problem; indeed the artificial formula contained only 60 μg/liter of B6 as compared to 130 μg/liter found in human milk. The manufacturers then solved the problem by adding supplemental pyridoxine to their product.

B6 Dependency

No sooner had this difficulty been overcome when Hunt[7] reported the first case of Vitamin B6 dependency.

The infant under observation began generalized twitching when three hours old, progressing in several days to generalized seizures and cyanosis. When the infant was fortuitously given a vitamin preparation containing relatively large amounts of pyridoxine hydrochloride, it became apparent that seizures could be prevented by routinely giving B6, or that they could be halted in 15 to 30 minutes by parenteral administration of B6. Only two mg. of pyridoxine hydrochloride per day, given orally, were needed to prevent recurrence of seizures in this child. Bessey[8] later reported two similar cases of this type. As contrasted with the deficient infants, none of these children manifesting altered tryptophane metabolism in the face of a tryptophane load.

Mechanism

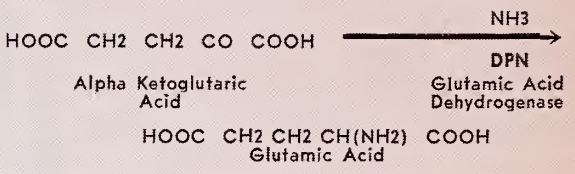
A brief excursion into neurochemistry will explain the postulated mechanism of B6 deficiency seizures.

In 1950 Awapara, Landua, Fuerst, and Seale,[9] as well as Roberts and Frankel[10] working independently, reported the presence of large amounts of gamma aminobutyric acid in mammalian central nervous system tissue found almost exclusively in the gray matter.

Experimental work by Florey[11] demonstrated that this substance, among others, was a powerful inhibitor of the crayfish stretch reflex. Grundfest then showed that it also had the effect on mammalian nervous tissue of inhibiting dendritic potentials in depolarizing synapses.[12] More recent work suggests that gamma aminobutyric acid actually indiscriminately suppresses neuronal activity.[13] Thus there is little doubt that there exists a substance in the central nervous system of mammals which experimentally is a powerful inhibitor of electrical activity.

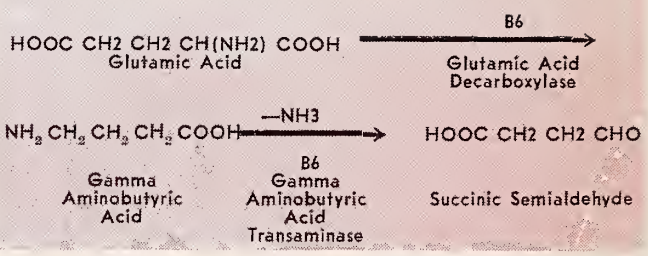
The 'plot thickens' when the source of gamma aminobutyric acid is delineated. Alpha ketoglutaric acid, an intermediate in the Krebs cycle of aerobic metabolism of carbohydrate, can, in the presence of glutamic acid dehydrogenase, be transformed into glutamic acid, (Fig. 1) which is found

Figure 1.



in abundance in the central nervous system and is located largely in the gray matter. An enzyme, glutamic acid decarboxylase, is capable of trans-

Figure 2.



forming glutamic acid into gamma aminobutyric acid (Fig. 2). Vitamin B6 in its active form, pyridoxal phosphate, is a necessary coenzyme in this transformation.

The breakdown of gamma aminobutyric acid is accomplished by an enzyme, gamma aminobutyric acid-transaminase, which can function only when B6 is present (fig. 2). Thus it may readily be seen that B6 is necessary for formation and breakdown of gamma aminobutyric acid.

It is also known that as B6 becomes scarce, the reaction of gamma aminobutyric acid formation is affected first, thus the practical effect of B6 deficiency is the diminution of gamma aminobutyric acid content in the brain.

In view of the known inhibitory action of gamma aminobutyric acid on synapses, it would

seem warranted to believe that a drop in gamma aminobutyric acid concentration could lead to uninhibited electrical activity resulting in clinical seizures.

Studies of brain tissue taken from epileptogenic foci have been demonstrated to have inherent abnormalities in glutamate metabolism, when studied in vitro.[14] These abnormalities can be corrected by the addition of gamma aminobutyric acid to the incubating medium. It should be pointed out that these studies are also the basis for the numerous clinical trials of glutamate in seizure patients.

Tests for Decrease in B6 Activity

No simple, clinical test for B6 deficiency is available; however, the most commonly employed method of assay is the tryptophane load test,[15,16] which employs the principle that in the pathway of tryptophane metabolism Vitamin B6 is necessary for the change of 3-hydroxykynurenic acid to 3-hydroxyanthranilic acid. The resultant pile-up of metabolites includes the accumulation and excretion of xanthurenic acid in the urine. Concentration of xanthurenic acid in urine is determined on a 24-hour control sample. Then the patient is given a 1-tryptophane load orally, and another 24-hour sample of urine is analyzed later for xanthurenic acid. Other metabolites studied include kynurenic acid and 3-hydroxykynurenic acid. In this way the pathway of tryptophane metabolism is subjected to a discrete form of stress. Other methods of direct and indirect B6 assay have been utilized, but none have proven to be feasible for routine clinical use.

The development of a simple means of B6 activity assay would help a great deal in the diagnosis and therapy of clinical problems.

The Chemical Construction of B6

Vitamin B6 actually consists of four closely related substances: pyridoxine, pyridoxamine, pyridoxal phosphate, and pyridoxamine phosphate. Only the latter two compounds are active. B6 is necessary in four types of chemical activity: decarboxylation, deamination, transamination, and removal of sulfhydril groups.

Clinical Application

The possibility of another wave of B6 deficiency in infants secondary to a deficient commercial milk formula is highly unlikely. However, there still remains the apparently small group of infants who fall into the B6-dependent group. As noted before, these children have normal tryptophane load tests. At present the only feasible method of detection is a short clinical trial of pyridoxine hydrochloride; 10-50 mg/day should suffice. Control should be rapid and dramatic.

Recently as we have screened seizure patients at the University of Minnesota Hospitals, we have found older children with abnormal tryptophane-load tests. These abnormalities are reversed with B6 administration.

Some of these patients have responded well to B6 therapy; others have responded transiently with a gross diminution in seizure duration, severity, and frequency. All of these children have continued on routine anticonvulsant therapy.

The distinctly unhappy possibility remains that some patients respond poorly to B6 because of the occurrence of irreversible damage subsequent to persistent pile-up of abnormal metabolites as well as numerous bouts of seizure activity.

Gamma Aminobutyric Acid

Furthermore, the question arises: How does gamma aminobutyric acid affect the human seizure victim when it is given to him?

It should be pointed out that all available evidence points to the fact that gamma aminobutyric acid does not quantitatively cross the blood brain barrier; nor does glutamate. However, glutamine does cross the barrier and is considered to be the carrier form of glutamate into the brain tissue. Therefore it is perfectly conceivable that gamma aminobutyric acid may, by utilization of some intermediate form, also cross the barrier. This is nothing more than speculation at the present time, however. In a preliminary study[14] Tower noted that when gamma aminobutyric acid was given intravenously in a dosage of .05 mM/kg. the patient experienced immediate flushing, a 40% drop in diastolic blood pressure, and increase in respiratory rate, along with a general felling of malaise which persisted for five minutes.

Fourteen patients were given gamma aminobutyic acid orally, a dosage of 0.8 mM/kg. daily for three months to two years. Oral administration

was followed by a 10 to 90 minute period of flushing, paresthesias of the extremities, and generalized malaise. Some patients noted onset of nausea, emesis, or diarrhea. After a few weeks, however, all patients developed tolerance to these side effects; four of the fourteen patients experienced some degree of relief from their varied types of seizures. Nothing indicated that the patients were selected on any basis except the presence of uncontrolled seizures; no selection was made on the basis of abnormality in B6 metabolism as determined by laboratory testing.

It is hoped that further study and work in this field will lead us to help an additional group of seizure patients.

Summary

The history of the discovery and a review of two seizure diatheses associated with B6 metabolism are here given. The B6-deficient infants were accidentally given a low-B6 formula and developed seizures after a variable period from the 6th to the 16th week of life. B6 dependent infants developed seizures during the first hours and days of life because of an unexplained metabolic need for increased B6 intake.

Vitamin B6 is important in the formation of gamma aminobutyric acid, a compound found in large amounts in mammalian brain substance. In addition it appears to be an important compound in controlling cerebral-electrical activity.

B6 deficiency and alteration in metabolism may be detected by means of the tryptophane load test, which relies on the measurement of xanthurenic acid excretion in the urine of a patient subjected to an oral tryptophane load. This test is positive in the B6-deficient infant and normal in the B6-dependent infant.

An infant who has seizures not explainable after a thorough physical examination and appropriate laboratory examination, i.e. of serum electrolytes, blood glucose, and blood urea nitrogen, may benefit from a 10-50 mg. test dose of pyridoxine hydrochloride.

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Why worry about getting older? When you stop getting older, you're dead!

The True Blood Glucose

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Copper reducing substances in blood, such as Glutathione, interfere with the test for blood glucose commonly used. A newer method of performing these determinations can aid the clinician in achieving greater accuracy in diagnosis.

THE ACCURATE determination of the blood sugar has multiple applications to the practice of clinical medicine. Obviously, this chemical analysis has its greatest use in the detection, diagnosis, and treatment of patients with diabetes mellitus. In patients with obvious polyuria, polydypsia, weight loss, and other classical symptoms of diabetes mellitus, the determination of the blood sugar value serves only a limited purpose toward establishing the diagnosis. However, in patients with latent or mild diabetes mellitus the diagnosis will depend almost exclusively upon the ability of the clinical laboratory to determine accurately the blood sugar values.

Latent or mild diabetes mellitus[1] is that condition in which there are no symptoms, but the diagnosis can be made by presently available laboratory procedures for evaluating carbohydrate metabolism. The early recognition of diabetes mellitus will provide the clinician with an opportunity to institute prompt therapy, probably prevent the later explosive onset of symptoms, and possibly delay for many years the development of frank diabetes. Early recognition of this disorder may also, from a theoretical concept, provide possible means for the delay or prevention of some or all the other well-known abnormalities that may occur in patients with diabetes mellitus.

*St. Louis Park Medical Center.

The blood sugar determinations may be clinically valuable during the fasting stage, during the post-prandial period, with the "Standard Oral Glucose Tolerance Test,"[2,3,4] or with the "Rapid Intravenous Glucose Tolerance Test.[5] Although the "Cortisone-Glucose Tolerance Test" is still primarily an investigative tool for early detection of decreased carbohydrate tolerance,[1] its interpretation also depends in a large measure upon the accurate determination of the blood sugar. It is further important that the laboratory diagnostic criteria be well defined and that the glucose determinations represent as closely as possible the "true blood sugar."

It is the purpose of this paper to present (a) the principles and technique of the Somogyi-Nelson method[6,7] for determination of "true blood sugar" and (b) the methods for establishing proper quality control of the glucose determinations. The Nelson modification of the Somogyi method is the currently accepted procedure for determination of the "true blood sugar" by a method other than that employed in the Auto-Analyzer and is undoubtedly more reproducible than the method using full automation.

Principles for Determining "True Blood Sugar"

Most procedures for the determination of blood sugar, other than that used in the Auto-Analyzer, depend on the reducing power of glucose on copper in an alkaline medium. Whole blood has other constituents which are also capable of reducing copper, the most important of which is Glutathione derived from the red blood cells. Glutathione is a nonspecific copper reducing substance which may produce a falsely elevated glucose value if not properly eliminated.* In the determination of blood glucose the initial procedure involves the removal of proteins from the whole blood, and the method used for protein precipitation will determine the amount of nonspecific reducing substances still remaining in the filtrate.

The Somogyi-Nelson method[6,7] of precipitation involves the addition of zinc sulfate and barium hydroxide to the whole blood sample. This forms an insoluble zinc hydroxide and protein precipitate. The filtrate, which is very nearly of a neutral pH, contains a minimum of nonspecific reducing substances. This filtrate, when treated with a solution of copper in the presence of an alkali, permits the glucose to reduce the cupric ion to the cuprous ion. In order to avoid precipitation of copper as the hydroxide, the solution also contains Rochelle salts which bind the copper in the presence of an alkali. In addition to careful precipitation it is also important to carefully control temperature, heating time, and alkalinity. Reoxidation of cuprous oxide is kept at a minimum by using the constricted Folin tube during the heating process. Arsenomolybidic acid is added after the heating process and this substance is reduced by the cuprous ion to form the molybdenum blue color. The intensity of the blue color is an indirect measure of the blood glucose.

In obtaining the whole blood sample glycolysis is minimized by using sodium fluoride as an anticoagulant. This anticoagulant prevents the glucose from being converted to lactic acid. Using the above techniques the normal value for "true blood sugar" will range from *65 to 95 mg. per 100 ml. of whole blood.* These values are comparable to those obtained by using the Auto-Analyzer.

Quality Control

Careful attention to quality control in any laboratory procedure should be included as an inherent part of the method. Even in the best laboratories, using constant quality control measures, there will be some values which are in excess of the "allowable error."

Depending upon the type of analytic process, the measures used to obtain reliability of chemical laboratory results may include: (a) control solutions, (b) multiple analyses by the use of duplicate or triplicate samples, (c) standard solutions, (d) recovery techniques, (e) reference methods, (f) "normal" samples, (g) screening of results, and (h) statistical definitions or the permissible difference in duplicate determinations of the control solution and the calculation of the "allowable error" for known solutions (filtrates of whole blood or commercial solutions).[8,9]

For the determination of blood glucose the primary methods for proper quality control include the use of (a) standard solutions, (b) control solutions, and (c) a statistical definition of

*Inherent error in the Folin-Wu method.

the "allowable error" (Table 1.). It is apparent from the data that the true glucose procedure should provide a degree of reproducibility of the control solution of ± 5 to 6%. Using the Auto-Analyzer this figure may be slightly higher but probably not more than ± 6 to 7%. Average values for duplicate determinations of the control glucose solution should not differ by more than ± 2%.[10] The greater allowable error as shown in Table 1 is based on the use of average values (R) and standard deviations (S.D.) for daily control solutions (filtrates of whole blood or commercial solutions).

The etching of colorimeter tubes, the deterioration of electrical components, the collection of dust on optical surfaces, and the problem of wavelength drift due to voltage variations are some of the reasons for necessitating daily standard solutions with each batch of unknowns. Voltage fluctuations can cause an appreciable error in a well controlled series of determinations because the drift may occur after the blank solutions have been read. This problem can be overcome by rechecking the blank solution between several of the unknown solutions and including at least three known standards of different concentration for plotting the calibration. The so-called "human error" must always be considered with any chemical determination and results may vary with different medical technologists or technicians. However, improved confidence can be gained by the careful use of the above standard solutions and thus minimize the errors due to the use of the same method by different technicians.

So-called "pre-calibrated" instruments are commonly used. However, it is extremely unlikely that two electronic instruments would perform identically. The "pre-calibrated" instruments represent the average of multiple determinations by multiple instruments of the same glucose solutions prior to distribution by the company. As such, the various instruments used may actually vary from the "average figure" by significant amounts. Such instruments, like all delicate instruments, need to be standardized individually.

In spite of the obvious need for using standard solutions with each batch of unknown determinations, the actual application of this simple quality control measure is highly disappointing. A study reported in 1959 by the Minnesota Department of Health[11] revealed that in 145 Hospital Laboratories of Minnesota performing tests for blood glucose only 22% used standard solutions with each batch of unknowns and *44% never used* standard solutions (apparently relying entirely on "precalibrated" instruments). A large number of Minnesota Hospital Laboratories do not use the proper method for glucose determinations and do not utilize the simplest means for insuring a method of quality control and reliability of results.

In addition to the use of known standard solutions there are available several other methods for checking the reliablity of final results. A pooled filtrate may be saved and after multiple determinations the mean (R) and standard deviation (S. D.) of this solution can be calculated[10] and used as a check of the method by spot application of this filtrate solution during the determination of unknowns.[8,9] Probably a better check

TABLE I

Review of Statistical Data on Four Chemical Procedures
Comparison of Three Clinical Laboratories

	St. Louis Park Medical Center (13)			University of Minnesota Laboratory (8)		
Procedure	Mean of Control mgs. %	Control Limits ± 3 S. D.	Allowable Error as % of Mean	Mean of Control mgs. %	Control Limits ± 3 S. D.	Allowable Error as % of Mean
Glucose	100*†	6.0	6 %	135 *	5.0	5.4%
Calcium	10	0.32	3.2%	9.6	0.3	3.1%
Cholesterol	200	10.0	5 %	209.7	5.4	2.6%
B. U. N.	20	2.3	11.5%	20	2.0	10.0%

*Glucose determinations using the Somogyi-Nelson method (6) (7)

†Based on the mean and standard deviation of 38 determinations of the same sample run on 38 different days.

V. A. Hospital Lab. (9) (12)			
Procedure	Mean of Control mgs. %	Control Limits ± 3 S D.	Allowable Error as % of Mean
Glucose	115 #	6.6	5.8%
Calcium	9.5	0.45	5.0%
Cholesterol	230	5.4	7.0%
B. U. N.	25.5	2.7	10.0%

#Glucose determinations using the Auto-Analyzer (not intended to define the exact precision of the Auto-Analyzer but merely to provide information relative to the method used in one laboratory using very careful quality control techniques.

The data shown for the St. Louis Park Medical Center laboratory (13) and the V. A. Hospital laboratory (9) (12) are derived by determination of the mean and the statistical standard deviation.

$$S.D. = \sqrt{\frac{x^2 - \frac{(\text{Sum } x)^2}{n}}{n - 1}}$$

Thus the "Control Limits" represent ± 3 times the calculated S.D. The data from the University of Minnesota laboratory (8) are derived by using an approximate "statistical device" and average differences between duplicate samples. The latter method has the advantage of reducing the analytic work load, but may seriously affect precision by abnormal narrowing of the "Control Limits" and the "Confidence Limits."

on quality control consists in the use of one of several reliable commercial standard solutions with predetermined concentrations of glucose. The reports on the use of commercially available solutions or pooled sera have been equally disturbing in that only 8% of 145 hospital laboratories reported the use of commercial solutions or pooled sera with each batch of unknowns and *61% of the facilities never* employed commercial solutions or pooled sera.[9] These solutions can be treated in the same manner as the unknown solution and if the calculated values of the commercial solution do not agree within ± 5 to 6% of the known value, then it would seem necessary to question the reliability of the determinations on the unknown samples. This would then require a careful recheck of the multiple areas in which error might occur and a rerun of the standard solutions, the unknown samples, and the commercial solutions. The cost of good quality control will increase the cost of the method within a very acceptable limit, but is well worthwhile, as it permits the clinician to place full confidence and reliability upon the values obtained from the clinical laboratory in the diagnosis and the treatment of the patient. The pooled filtrates are not completely stable for longer than two to three days and thus it is apparent that the commercial standard solutions, which are entirely stable, have a great advantage. For ideal quality control a commercial solution should be used with each batch of unknown solutions; however, if standard solutions are used with each batch, it may be reasonable to use commercial solutions as a check of the method at periodic intervals or whenever there is apparent difficulty with the standard solutions.

Reagents Required—Somogyi-Nelson Technique

1. *Barium hydroxide solution.* Dissolve 90 grams of $Ba(OH)_2\ 8H_2O$ in distilled water and dilute to 2000 ml. in a graduated cylinder. Filter solution if cloudy. Store this solution in a well-stopped container filled to capacity.

2. Zinc sulfate solution. Dissolve 100 grams $ZnSO_4 \cdot 7H_2O$ in distilled water and dilute to 2000 ml. in a graduated cylinder and mix. This solution is stable indefinitely.

(It is most important that these two solutions exactly neutralize each other. This can be determined by measuring 10 ml. of zinc sulfate solution into a flask and diluting with approximately 50 ml. of distilled water. Add 4 drops of phenolphthalein solution and titrate with the barium hydroxide solution. Titration should be carried out slowly and with constant shaking until one drop of the alkali turns the mixture pink. If it requires more or less than 10 ml. ± 0.05 ml. of barium hydroxide, dilute one or the other solution as required and recheck for neutralization. Continue this process until the two solutions are exactly equivalent. Protect the barium hydroxide solution in the dispensing bottle with a soda-lime tube in the stopper and test both solutions occasionally by making a trial filtrate on blood. Satisfactory solutions will give a clear filtrate which filters rapidly and shows little tendency to foam.)

3. *Alkaline copper reagent.* Solution A. Dissolve 50 grams of anhydrous sodium carbonate, 50 grams of Rochelle salt, 40 grams of sodium bicarbonate and 400 grams of anhydrous sodium sulfate in approximately 1600 ml. of distilled water and then dilute to two liters. Mix this solution thoroughly and filter if it is not clear. Store this solution at room temperature. If a sediment forms within a few days, then filter again.

4. *Alkaline copper reagent.* Solution B. Dissolve 150 grams of $CuSO_4 \cdot 5H_2O$ in distilled water and dilute to 1000 ml. Add 0.5 ml. of concentrated sulfuric acid and mix thoroughly. (*On the day of the test place 4 ml. of solution B in a a 100 ml. graduated cylinder, dilute to 100 ml. with solution A and mix to obtain the final alkaline copper reagent.*

5. *Arsenomolybdate color reagent.* Dissolve 100 grams of ammonium molybdate in 1800 ml. of distilled water. Add 84 ml. of concentrated sulfuric acid with frequent stirring. Dissolve 12 grams of disodium orthoarsenate ($Na_2HAsO_4 \cdot 7H_2O$) in 100 ml. of distilled water and then add to the acidified molybdate solution with frequent stirring. Place the mixture in an incubator at 37° C. for one to two days. Store this solution in a glass-stoppered brown glass bottle. This solution should be stable indefinitely.

6. *Standard glucose solutions.* Prepare a stock standard by dissolving exactly 1.00 gram of highly purified anhydrous glucose in approximately 10 to 15 ml. of 0.2% benzoic acid solution and then transferring this quantitatively to a 100 ml. volumetric flask. Dilute the solution to the 100 ml. mark with benzoic acid solution and mix thoroughly. This solution is stable indefinitely and contains 10 mg. of glucose per ml. *Standard I* (0.0125 mg. of glucose per 0.5 ml.) is prepared by diluting 0.5 ml. of the stock solution to 200 ml. with 0.2% benzoic acid solution and then mix. *Standard II* (0.025 mg. of glucose per 0.5 ml.) is prepared by diluting 1.0 ml. of the stock solution to 200 ml. as described for standard I. *Standard III* (0.050 mg. of glucose per 0.5 ml.) is prepared by diluting 2.0 ml. of the stock standard to 200 ml., using the same method as for standard I. These dilute solutions in 2.0% benzoic acid solution will keep indefinitely at room temperature.

In the Somogyi-Nelson method[6,7] blood is deproteinized by a zinc hydroxide-barium sulfate procedure which provides a filtrate containing practically no reducing substances other than glucose. The zinc-barium filtrate is heated with an alkaline copper reagent and then treated with a special arsenomolybdate color reagent. The color developed is compared with that obtained from a known amount of glucose.

Procedure — Somogyi-Nelson Technique

1. *Deproteinization:*
   a. Place 1 ml. of blood in a 50 ml. flask. tion with mixing by rotation.
   b. Add 9.5 ml. of barium hydroxide solution with mixing by rotation
   c. Add 9.5 ml. of the zinc sulfate solution, also mixing by rotation.
   d. Shake vigorously and filter on a dry filter paper collecting the filtrate in a dry flask.

2. *Determination of glucose:*
   a. Measure 0.5 ml. of the barium-zinc filtrate into a test tube (Folin tube) calibrated at 10 ml.
   b. Add 1 ml. of the alkaline copper reagent (prepared by mixing solution A and B as described above), mix by tapping the tube and cover the top of tube with a marble.
   c. Place the tube upright in a boiling water bath for 20 minutes.
   d. Cool by placing the tube in water at room temperature for one minute.
   e. Add 1 ml. of the arsenomolybdate color reagent and mix by tapping on the side of the tube.
   f. Dilute this solution further to 10 ml. with distilled water.
   g. Prepare a blank solution by carrying out the exact procedure as described but using 0.5 ml. of water instead of blood.
   h. Set the photometer to 0 density with the blank solution and measure the optical densities of the standard solutions and the unknown at 650 mu.

i. Compare the color of the unknown in colorimeter against the simlutaneously prepared standard solution by treating 0.5 ml. of each of the standard glucose solutions exactly as described for the blood filtrate.

j. Plot the values for the three standard solutions on a semi-logarithmic paper and read the unknown from the graph.

Summary

An effort has been made in this presentation to explain the value and significance of determining "true blood glucose" as opposed to using tests which measured total reducing substances (Folin-Wu method, original and modified; Shaffer-Hartmann method; Hagedorn-Jensen method; and Sunderman method).

For clinical laboratories in hospitals or physicians' office in which the volume of work does not require the use of the Auto-Analyzer, or in laboratories where this method has not been established by reason of the economic factors; the Somogyi-Nelson method for determination of "true glucose" is recommended as the procedure of choice at this time.

The principles of this method have been outlined in detail and the exact methodology described in careful detail. In order that the values be meaningful for clinical application, it is necessary to establish certain minimum requirements for quality control [8,9,10,12] and these have also been carefully discussed. Using this method the "Allowable Error in per cent of the Mean Value of the Control" should not exceed ± 5 to 6%.

Considerable improvement will be required in the methodology for determining glucose in order to achieve this degree of quality control in the Hospital Clinical Laboratories in the State of Minnesota. There are no known available statistics regarding the determination of blood glucose in physicians' offices; however, it is predicted that the determinations are probably less accurate than values reported from the Hospital Laboratories.

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SOCIALIZED MEDICINE

A man went for treatment and found himself in a room with two doors: one marked Chronic, the other, Acute. He knew his condition was acute so he went through that door and found himself in a room with two doors: one marked: Above the Waist, the other: Below the Waist. He entered the former and found himself in a room with two doors. One was marked Republican: the other, Democrat. He went through the door marked Republican and found himself out on the street.

A Simulated Car Crash and the HUMAN ADRENAL with Reference to Aldosterone Excretion

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INFORMATION on adrenal cortical function during episodes such as a car crash is scarce. It was of interest, therefore, to report data on blood 17-hydroxycorticosteroids in a healthy young male subjected to extremely rapid deceleration.[1] The earlier finding of a limited adrenal cortical reaction, in the light of data on plasma 17-hydroxycorticosteroids, can now be extended by information on the urinary excretion of aldosterone in the same subject. The data relate to a single and unusually athletic individual. The activity pattern of this person was well-defined. The diet was not controlled. The particular subject studied is not representative of the general population. But the data seem unique thus far in that they depict an aspect of human adrenal cortical function after exposure to mechanical stimuli not usually amenable to study in man.

The Test Subject

A healthy subject, 34 years of age, was provided with a crash helmet-face guard and extensive padding in front of the chest and around the pelvic bones. He was then strapped to a seat on a sled, Figure 1, and shot against a wall at 25 mph, Figure 2. Within a fraction of a second, he was thus subjected to rapid acceleration followed by prompt impact-deceleration, Figure 3. The unusually fit, diurnally active, subject studied,[1]

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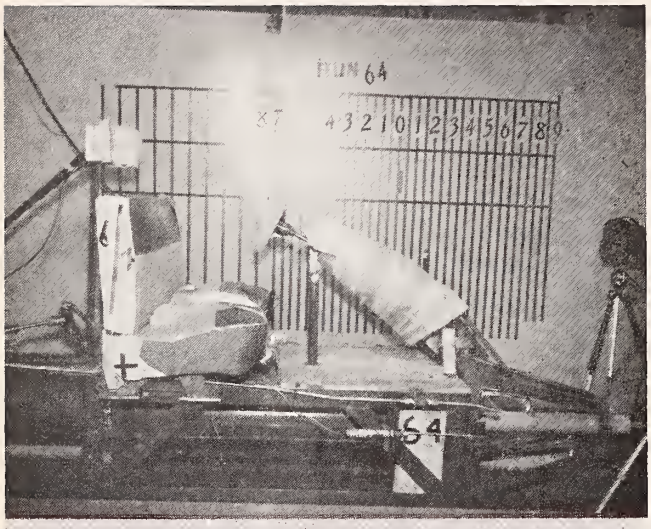


Fig. 1 — Cart assembly with seat-belts, a hydraulic fluid-operated belt tightener behind the seat, a padded collapsible steering column, and a hydraulic shock-absorbing bumper.

as well as the mechanical equipment,[2-4] conditions of test, and procedures for determining aldosterone excretion[5] and plasma 17-hydroxycorticosteroids,[6] most of which are accounted for by cortisol in man, are described elsewhere.

Urinary Aldosterone

Urinary volume and aldosterone were determined for 48 hours following impact. The individual values for aldosterone excretion during each 4-hour period are presented in Figure 4 as bars delineated by continuous lines. The corresponding urine volumes are graphed as bars delineated by broken lines. For aldosterone excretion, the means for the first and the second 24-hour period after impact are also shown.

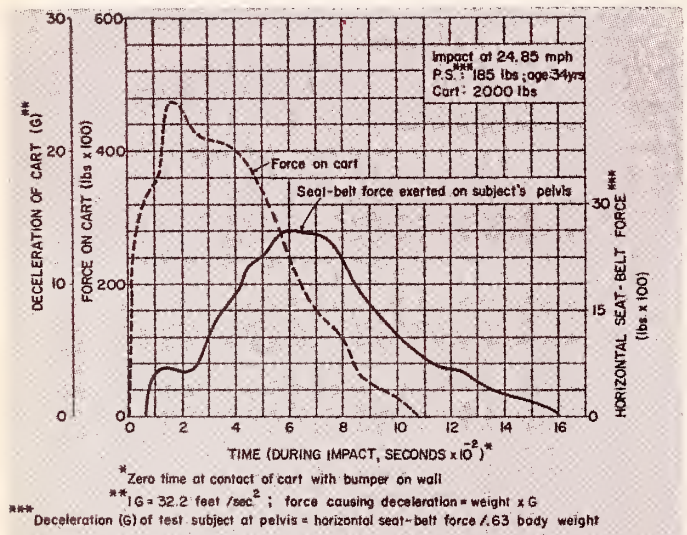


Fig. 3 — Time histories of distinctly different forces acting horizontally upon subject and cart during impact. Steering wheel with 3" travel. Single belt tightener. Forces acting upon subject via seat belt are corrected for horizontal component. With angular component added total force would be about 15% greater.

Over-all averages and standard errors for aldosterone and volume of urine are given on the extreme right and left of Figure 4. Not shown in the figure is the 24-hour excretion of aldosterone, determined by the same technique in the same laboratory, on urine from 7 normal adult males, 18 to 24 years of age, receiving diets containing 109 mEq of sodium per day. The latter group mean for the 24-hour aldosterone excretion based on 21 samples, each covering 24 hours, was 9.7 ug. The individual with the highest 24-hour mean among these subjects on a controlled sodium intake excreted 16.1 ug.

Immediate Effect of Impact

By comparison, total aldosterone excretion of the test subject during the 24-hour period following impact was 15.0 ug. The corresponding total during the next 24 hours was 16.3 ug. The mean value of 15.65 ug/24 hours in our subject may not be excessive, when compared to the results from the limited normal sample.

However, sodium intake of the test-subject was not controlled. The subject's diet on the two test days was not unusual but his sodium intake was probably "somewhat above average since he likes his food spicy." What can be safely assumed is that the diet was comparable from one day of study to the next. Therefore, a possible effect of impact may be sought by comparing values obtained early after the time of impact with those obtained later. One can compare, for instance, the value for the first period of four hours, 2.3 ug, with the average of the subsequent 11 periods, i.e., 2.64 ug. The first 4-hour period after impact and the next two 4-hour periods show indeed a relatively low aldosterone excretion and almost certainly not an elevated one (Figure 4).

The mean 4-hour value for aldosterone excretion during the first 24-hour period and its standard error were 2.5 and 0.54 ug, as compared to 2.7 $\pm$ 0.64 ug during the second 24-hour period after impact. The difference in 24-hour aldosterone excretion between the first and second 24-hour period after impact is 0.217 ug. It is not statistically significant (Student's $t = 0.258$; $P > 0.5$). Urine volumes after impact were slightly below the level of their 48-hour mean.





Fig. 2. Subject on cart at critical times during impact. 0.00 seconds: Contact between cart and bumper on wall. 0.06 seconds: Position of maximum pull exerted upon subject by seat belt. Subject's torso vertical.





0.11 seconds: Torso rotated forward. Contact between chest and padded steering wheel; seat belt is pivot. 0.16 seconds: Extreme forward rotation of torso, contact between head and padded steering column. Padded collapsible steering wheel retracts.

Circadian (about 24-hour) Rhythm

Within-day changes in urinary aldosterone and urinary volume — functions known to show a circadian rhythm, as discussed elsewhere[7] — are also plotted in Figure 4. During the first 24-hour period after impact, aldosterone excretion was highest between 0200 and 0600, a period of rest, actually sleep. The effect of rhythmic bodily rest and activity upon the circadian adrenal cycle can be viewed in the light of evidence suggesting that this cycle, *per se*, is not a sole, direct and immediate reaction to activity on any one day.[8-12] The first peak of aldosterone excretion during sleep is in keeping with this suggestion.

The peak excretion of aldosterone during the second 24 hours occurred between 1800 and 2200. On that day, as on previous days, the subject exercised for about one hour around 1800. Exercise consisted of intensive swimming for about 40 minutes followed by 10 to 15 minutes of calisthenics, or playing squash for about 50 minutes and swimming for about 10 minutes thereafter. This background information refers to a period of habitual exercise, i.e., to a routine maintained with but few exceptions for many months prior to the test. This routine may have assumed the role of a secondary synchronizer[12-16] contributing to the timing of aldosterone peak excretion on the second day after impact although not on the first. This interpretation does not imply, however, that the synchronizer determines the rhythm *per se*. [14-16]

While the extensive literature on this problem is beyond our scope herein, other evidence suggests that temporal conditioning to periods of habitual activity,[17] does not, in itself, account for the planning of related studies on effects upon

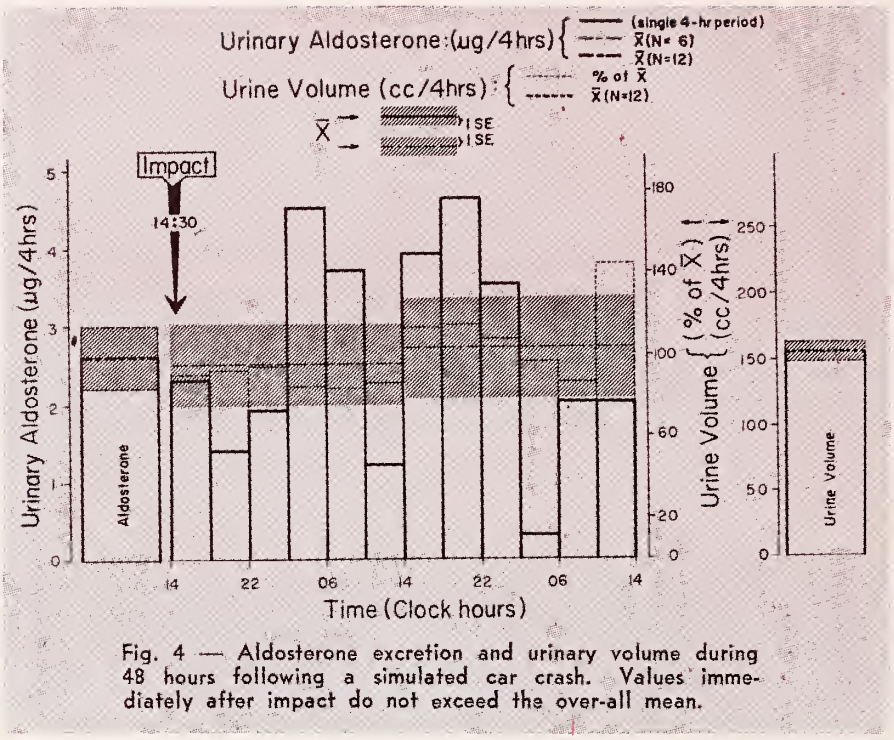


Fig. 4 — Aldosterone excretion and urinary volume during 48 hours following a simulated car crash. Values immediately after impact do not exceed the over-all mean.

for an organism's make-up in time — gauged by its rhythms, circadian and other.

The suggestion that on the first day after impact, as compared to the second, the aldosterone rhythm was transiently shifted in phase cannot be validated by the limited data, but another point can be made conclusively. During none of the 4-hour periods on the first day after impact did aldosterone excretion exceed the range delineated for this subject by the peak and trough of his physiologic changes on the second day of study. It is pertinent that on the second day after impact, obvious mechanical and emotional stimulation had subsided. The great extent of change in urinary aldosterone on the second day, however, may have resulted from the superposition of physiologic rhythm and another component, added by the stimuli associated with the test.

Plasma 17-hydroxycorticosteroids were 18, 13, and 20 ug% at 15, 30, and 105 minutes after impact, respectively. The mean of the three post-impact values, 17 ± 3.7 ug%, corresponds roughly to a value of 18 ug% found for the same subject at the peak of his circadian rhythm, determined by 4-hourly sampling throughout a 24-hour period, on an uneventful day. [1, cf. also, [11] Post-impact values should also be compared with a value of 8.7 ug%, at a roughly corresponding circadian system-phase[14] on an uneventful day and with an over-all mean of 12.6 ± 1.7 ug% for that entire day.[1]

Thus although the combined mechanical and emotional stimuli to which the subject was exposed probably resulted in a shift of cortisol rhythm, none of the post-impact values exceeded the upper limit of the physiologic range of variation in this subject, as far as this can be delineated by periodicity analysis. [11, 18]

Discussion

It is suggested that more extensive study of impact-induced and other shifts in circadian rhythm from observations available before as well as after a given stimulus will unmask effects that remain undetected when, without regard for periodicity, values are considered to be normal or abnormal only because they fall within or outside a so-called physiologic range, not qualified as to temporal parameters. [8-12]

Differences between the effects of transverse and longitudinal acceleration, and considerations as to forces involved, duration of exposure and other aspects of the same problem have been discussed by Parin from the viewpoint of central nervous system, circulatory and respiratory physiology.[19] These will be pertinent points

for the planning of related studies on effects upon the adrenal cycle and other aspects of circadian system physiopathology.

In any event, the present findings as to the "tolerance" of human adrenal cortical function to deceleration must be qualified with respect to: (1) the specific forces involved in the test situation, Figure 3, described in detail elsewhere,[2-4,18] (2) the unusual physical fitness of the test-subject[1] and, further, (3) his seemingly minimal emotional tension or apprehension before the test as well as thereafter. Emotional tension is justly considered of paramount importance by students of bioastronautics, [19, 20] among others.

Summary

A new seat belt design, a collapsible steering column and a hydraulic shock-absorbing bumper were tested with a human volunteer subjected to a simulated car-crash, by being shot against a wall at about 25 mph. No serious lasting ill effects from this impact became apparent within a period of 10 months after the test.

Human adrenal function after such an impact was gauged by determinations of 17-hydroxy-corticosteroids in plasma and of aldosterone in urine. Apart from probable subtle changes in the circadian rhythms of these functions, the hormone levels found after the crash did not exceed the values associated with the peak values of the physiologic circadian rhythm.

The test subject is remarkable in several ways. He is an outstanding athlete. He adheres to a rigorously standardized pattern of physical activity. He subjected himself to the test without apparent emotional tension. Hence, his data bear upon the mechanical effects of the test situation, with little, if any, complication from emotional factors.

Conclusion

It can be concluded that the plasticity of the adrenal cycle in this subject sufficed to absorb any effects of the impact at about 25 mph without lasting excessive cortical adrenal stimulation. Aside from physiologic considerations and without extrapolation beyond the limited data, the safety devices used can be regarded as quite satisfactory for the circumstances of this test.

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The fool that used to blow out the gas now steps on it.

The best way to remember your wife's birthday is to forget it once.

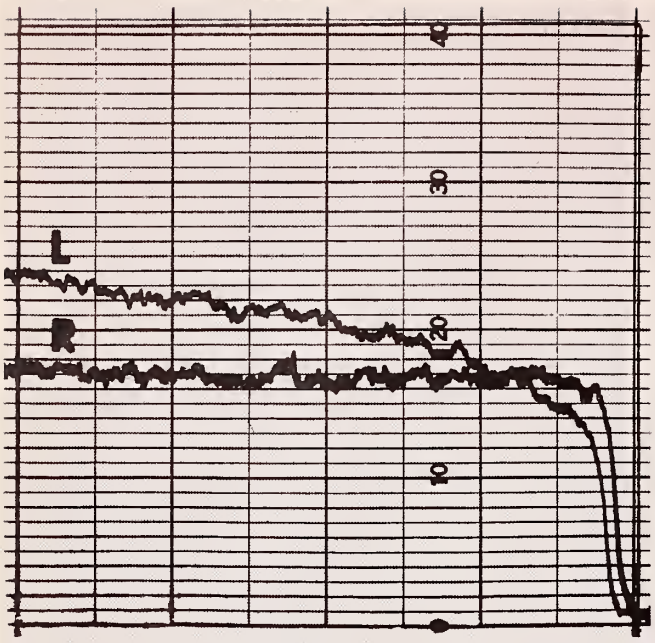


Fig. 1

Case 1. H. B.; Prostatic carcinoma, BUN 87 mgm. %. Renogram shows bilateral poor vascular response; no tubular excretion of right kidney, with little function of left kidney and associated stasis.

Radioactive renograms have provided useful clinical information in patients with kidney failure. Interesting findings are presented indicating the usefulness of this method of diagnosis.

Radioactive

THIS REPORT IS intended to summarize the value of radioactive renograms in one hospital from the standpoint of the clinical urologist. There has been more extensive discussion of techniques, hypertensive screening, variations of finer interpretations, and types of equipment among Breitenbucher,[1] Winter[2,3] and others.[4,5]. We were initially interested in the possibility that the late pooling of intravenous media in renal tumors as seen on aortography might be detectable on renograms which might prove a fairly safe and simple way of differentiating tumor from cyst, if consistently present. Unfortunately, this has not proved to be the case in a series of 12 renal tumors, even with delayed renograms. One tumor showed marked cystic degeneration and portrayed clearly the danger of diagnosis without exploration in cases of renal mass. Recent advances in individual renal scanning have improved this situation but can not entirely eliminate this possibility of error.

The Value of Renograms

Renograms have proved to be of definite

Renograms (Example) have proved to be of value in the following instances:

Uremia

Most of these patients were critically ill and extremely poor risks for any type of procedure.

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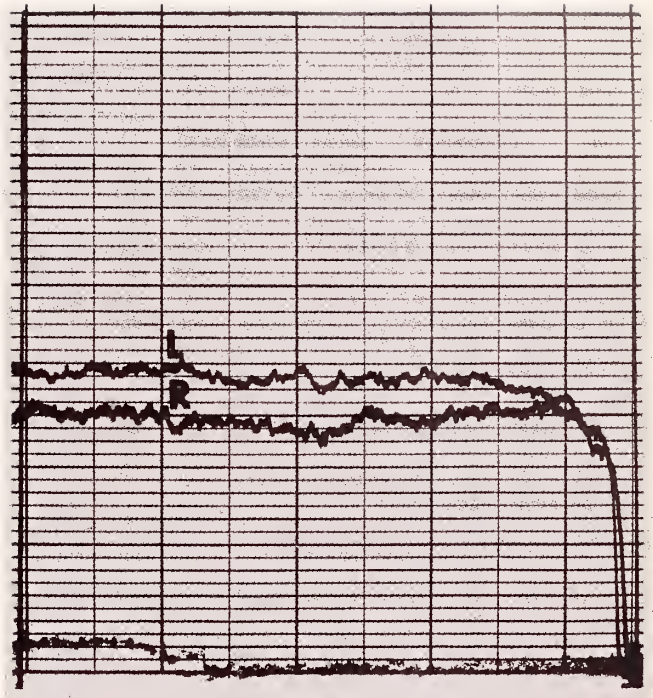


Fig. 2
Case 2. A. S.; Carcinoma of colon, BUN 97 mgm. %. Renogram shows bilateral poor vascular and tubular response as well as chronic stasis.

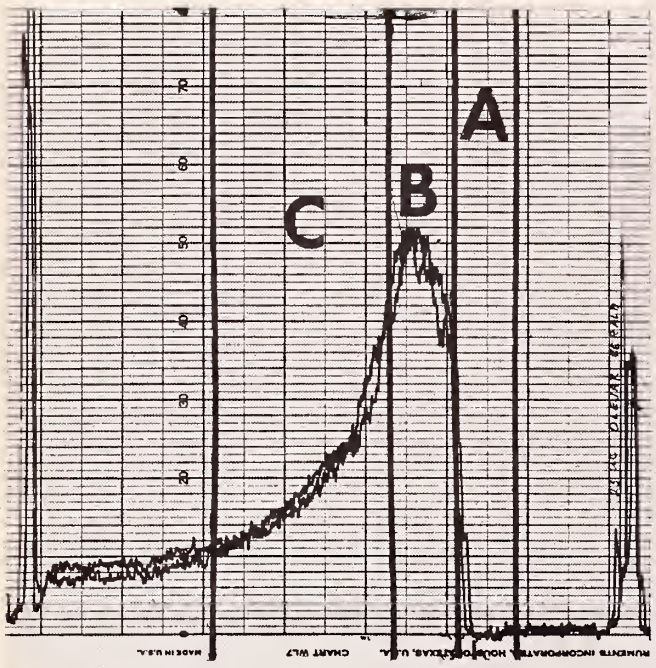
Renograms

Practical Values

Excretory urography was of no value; therefore, cystoscopy with placement of indwelling ureteral catheters was utilized in the hope that some factor of ureteral obstruction existed, which could be relieved. Where this was true the procedure was often life-saving; where no obstruction existed, the risk of anaesthesia and the possibility of resultant infection further jeopardized the patient's chances of recovery. For the past year, radioisotope renograms have been utilized whenever cystoscopy was contemplated under these circumstances. Unnecessary cystoscopy was avoided in 11 cases where the study showed no obstruction and poor renal function. Two cases, in which operative relief of ureteral obstruction due to carcinoma was contemplated, were spared ineffectual surgery by renograms showing such poor renal vascular supply and tubular secretion phases that the intended procedures were deferred and the patients allowed to die without further intervention. Subsequent autopsy findings confirmed the renograms in each case. (Case 1 and 2, Figs. 1 and 2).

Renal injury

The chief value of the study here is in showing the presence and function of the uninjured kidney. With a patient poorly prepared, hypotensive and in pain, excretory urography is often unsatisfactory in the acute phases of the injury. A renogram can be performed in the patient's



Normal Isotope Renograms.
Section A shows vascular peak following injection of radio active isotope, sodium-ortho-iodo hippiurate (Hippurn). Section B shows the tubular excretion phase with the beginning of the excretory phase. Section C shows a fairly normal excretory phase with excretion of the isotope in a normally emptying kidney. Total time: 20 minutes.

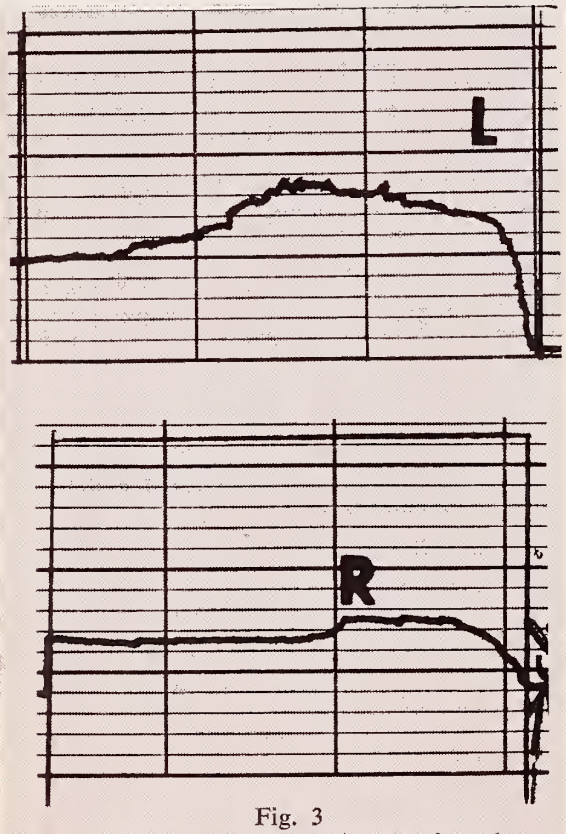


Fig. 3
Case 3. S. O., Unusual case of total renal infarction due to trauma to right kidney.
One week following injury. Normal left renogram; right shows marked decrease in vascular supply and tubular excretion.

room with no preparation, little discomfort, and immediate results. Although it cannot supplant urographic studies of the injury itself, it permits sufficient stabilization of the patient to obtain satisfactory urograms when they are taken, or essential information regarding the uninjured kidney if immediate surgery is necessary. Where the possibility of injury to a solitary kidney exists, renographic evidence of a second kidney is invaluable. The renogram is not reliable, however, in showing the absence of a kidney, since absence of function or of the organ itself gives similar tracings. (Case 3, Figs. 3, 4 and 5).

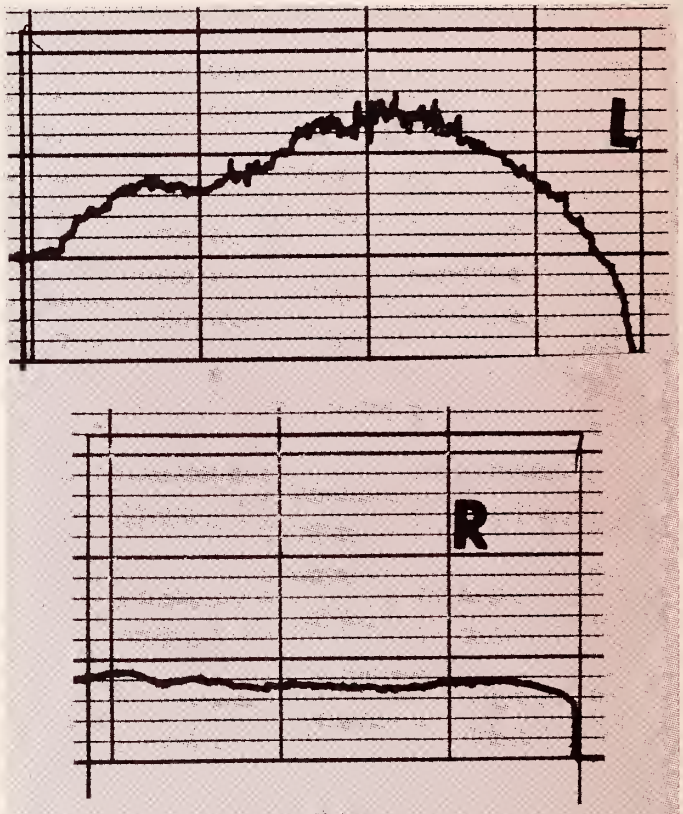


Fig. 4
Case 3. One month after injury; left kidney renogram shows increase in vascular and tubular phases indicating hyperplasia. Right kidney shows almost no vascular or tubular phases.

Relative renal function

With the introduction of urographic media containing high iodine concentrations, the value of excretory urography as an estimate of relative renal function has largely disappeared. The renogram is a rapid, inexpensive, and accurate means of determining differences in function with minimal radiation exposure. Several investigators have

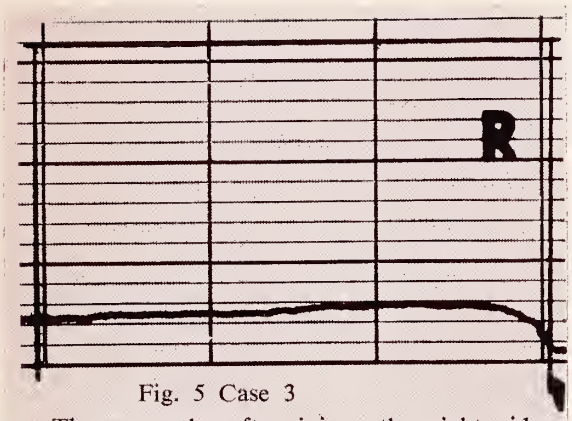


Fig. 5 Case 3

Three months after injury the right side shows no improvement. Nephrectomy revealed atrophic infarcted kidney.

shown excellent correlation between the renal tests currently in use and a radioactive renogram.[7] While it is not as quantitatively refined as the individual tests, for practical clinical use it has proved adequate in the majority of cases and its practicality has provided a function study in far more patients than previously could have afforded or tolerated the total battery of laboratory tests. Several authors have attested its value in the screening of hypertensive patients.[1,3] Recent studies of radioisotope renal excretion tests should improve the present methods of quantitatively measuring individual renal function. From the urological standpoint, it has been of equal value in the follow-up of postoperative renal surgery,[8] infected hydroephrosis of pregnancy, renal injury, polycystic disease, and pyelonephritis. Use of the renogram in these cases, on an outpatient basis, has permitted closer observation and more intelligent care and prognosis. (Case 4, Fig. 6 and Case 5, Fig. 7).

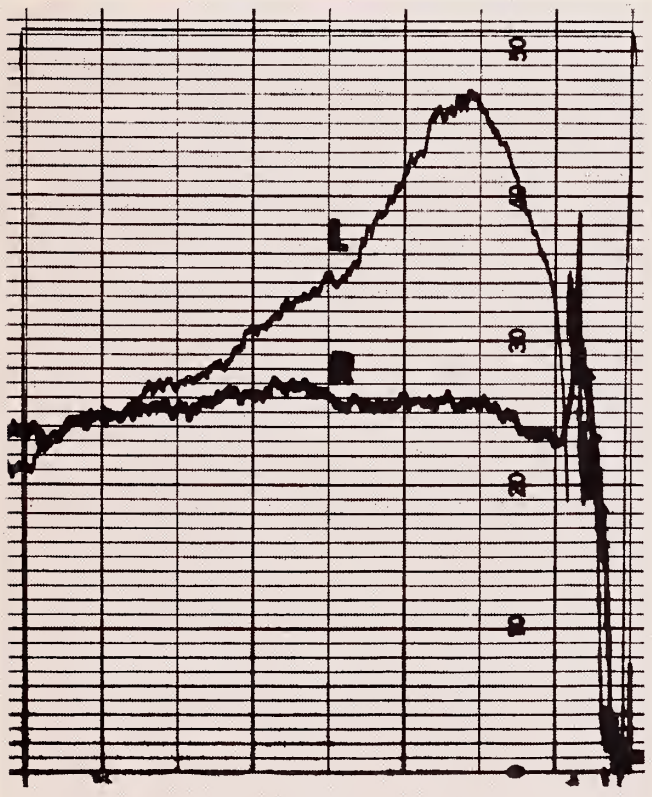


Fig. 6

Case 4. V. S.; Right hydronephrosis due to stricture of the ureteropelvic junction. Preoperative renogram shows tubular excretion of right kidney to be less than one fourth of total function portending operative failure. In spite of evidence, pyeloplasty was performed and widely adequate revision achieved; kidney failed to recover, however.

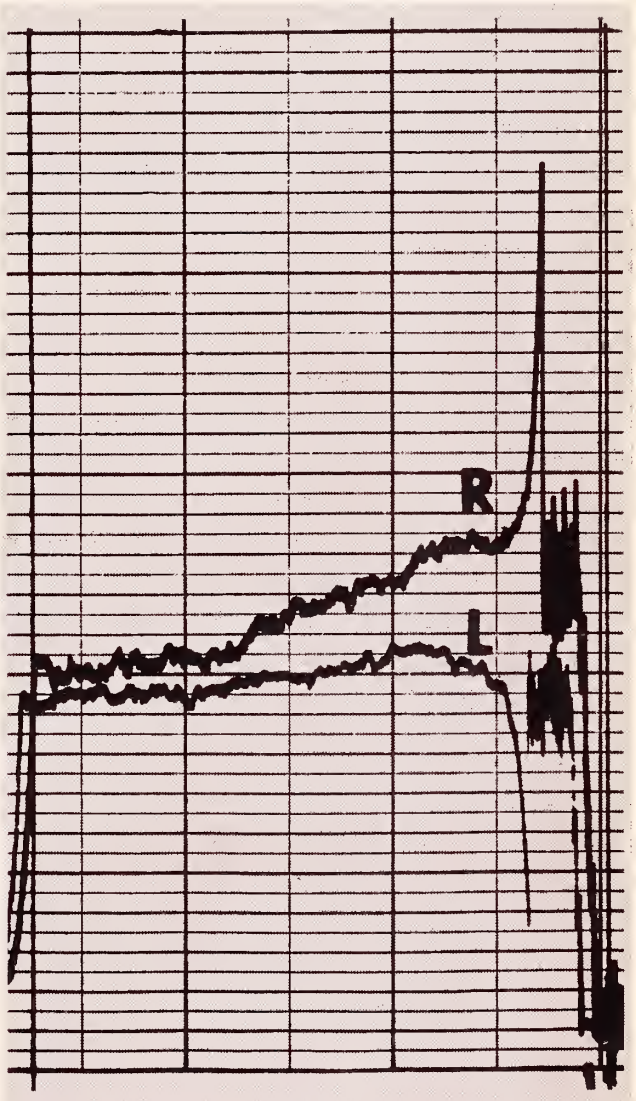


Fig. 7

Case 5. C. F.; Mild azotemia and right renal mass, possible cyst or tumor. Renogram reveals left kidney function too poor to sustain life alone; operation deferred and urogram one year later shows no change in mass.

Summary

While it obviously cannot supplant excretory urography or pyelography in urological studies, the radioactive renogram has proved to be an excellent supplemental test, and in those cases where the standard procedures are neither obtainable nor desirable, it has been of definitive value.

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Patron Saints in the Field of Medicine

The Month of June

June dates commemorate a host of patron saints associated with medicine, including the conventional characters who founded and administered hospitals, nursed the sick, and healed miraculously. Also on the June roster appear saints to be invoked against nearly all afflictions and calamities — from birth pangs and snake bite to twitching, sterility, and frenzy.

Familiar names are St. Paul (June 30), St. Peter (June 29), and St. Lazarus and St. Gonzaga (both June 21).

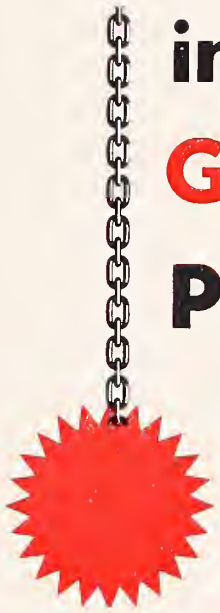
Two personalities of somewhat more than average interest or significance are Bd.* John the Sinner (June 3) and St. Landericus of Paris (June 10), the latter distinguished as the reputed founder in 650 of the first real hospital in Paris, the now still extant Hotel Dieu (Hostel of God). St. Landericus' image represents him as holding either a razor, presumably indicating the barber-surgeon profession, or a basket from which he is distributing alms to the sick and needy.

Bd. John the Sinner started life in Spain in the 16th century as John Grande; grew up to engage in the linen trade; gave up his business after "seeing the light;" changed his surname to Pecador (sinner); and retired to a hermitage, where he remained until God called him to Xeres to care for the sick in the prisons there. So competent was he that he was asked to take charge of all the public hospitals in that city, which he did, administering them so successfully that appreciation and recognition of his service brought later beatification in 1853.

*Bd. Beatified — not canonized.

You've got to do your own growing, no matter how tall your grandfather was.

EMERGENCIES in Geriatric Practice *



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Acute forms of disease require immediate but one treatment standard for the "oldster" "age" of the patient. In our society there is but one treatment standard for the "oldsters" and the "youngster" . . . . that which is most reasonable and safe for the patient.

OLD AGE is a relative term, the meaning of which depends on its usage. The effects that social security and retirement laws have had on the social structure make it convenient to designate the age of 65 years as the portal of entry to the senium. The diseases encountered in people having reached that age are much the same as those afflicting younger people. They are, however, complicated by the degenerative processes of aging and by the effects of ills suffered earlier in life. As a result of these conditions the body has become less resilient.

Emergencies encountered in older patients may be predominantly somatic or largely psychiatric in nature; often they become a combination of both.

*Presented at the Center for Continuation Study, University of Minnesota June 1, 1961.

The Effect of Age

With age reaction time is lengthened, and as a result the older patient is apt to stumble and fall. Since the bones have become brittle, fractures are likely, one of the most common sites being that of the neck of the femur. Here prompt surgical fixation is indicated. Following surgery it is important that the position of the patient be changed frequently in order to prevent hypostatic pneumonia. For the same reason he should be allowed to sit up in bed or in a chair as soon as good surgical practice will permit. This is desirable not only for physiological reasons,

but for psychological as well. The psychological aspects will be considered later.

Constipation

Of the emergencies referable to the gastrointestinal tract, obstruction is perhaps the most common in the aged. When such occurs fecal impaction should always be suspected. Old people tend to be constipated. If in addition, a degree of forgetfulness is present, there may be a lack of attention to the function of the bowels and impaction may result. Another factor in areas where outdoor plumbing prevails is that in the dead of winter bowel movements may be postponed so long that impaction may occur. In all cases of intestinal obstruction it is imperative that the physician put on the gloves and do a rectal examination.

Hernia

Incarceration of an inguinal hernia is a fairly frequent occurrence in the aged. This is an emergency which could to a large extent be prevented by surgical repair of the hernia when first discovered and before incarceration occurs. Intestinal obstruction may be caused by a number of other conditions, such as regional ileitis, volvulus, intussusception, etc. Whenever it occurs it presents an emergency.

Gastrointestinal

Malignancy in the gastrointestinal tract as a rule does not require emergency surgical intervention; but it may, if it causes massive bleeding or perforation.

Gall Bladder Disease

Acute gall bladder disease is encountered fairly often in the older age group and constitutes an emergency which in most cases could have been prevented by elective surgery when gall stones were first detected. The incidence of gall stones is high in the older age group; in two separate surveys conducted at the Rochester State Hospital, while I was superintendent of that institution, roentgenological evidence of gall stones was found in 20 percent of newly-admitted women in the age group of 50 to 74 years inclusive.

Incidence

In the 20-year period from January 1, 1940 until December 31, 1959, a total of 1733 necropsies were performed at the Rochester State Hospital, all of them done by the Section of Pathology of the Mayo Clinic. In this series 1298 (70.5 per cent) of the subjects were 65 years of age or more, and gall stones were found in 381 instances (29.3 per cent), as compared with 83 (19.1 per cent) of the 435 subjects under 65 years of age.

Surgery

In my opinion elective surgery for the removal of gall stones should be done in most, if not in all, cases where the presence of stones has been established and the physical condition of the patient allows it. This not only prevents a possible emergency later on, but contributes to the patient's feeling of well-being. In addition, there seems to be some toxicity from absorption in chronic gall bladder disease. The great mental improvement observed in many mentally-ill patients following the surgical removal of a diseased gall bladder can not be explained merely in terms of a great feeling of well-being.

Peptic Ulcer

There is a generally held belief that peptic ulcers are rare in the patient population in the state hospitals for the mentally ill, based on the fallacious idea that these patients, especially those who have stayed there a long time, supposedly are withdrawn and placid, living a well-regulated life in a sheltered environment, and therefore not subjected to the mental and emotional stress which are thought to predispose people to peptic ulcers. Also, those who are disturbed give vent to their feelings instead of suppressing them and thereby causing tension.

Incidence

In the before-mentioned series of 1733 necropsies, active peptic ulcers, gastric and duodenal, were found in 73 instances (4.2 percent), neither healed nor terminal ulcers being included in these figures. Many of the ulcers were in the very old, the oldest being 97 years of age. In several instances peptic ulcers became emergency problems due to perforation or hemorrhage. Since there is no reason to believe that the incidence of peptic ulcers is higher in the Rochester State Hospital than in

any other state hospital for the mentally ill, the conclusion could be drawn that the placidity might be greater on the part of the medical staffs than on the part of the patients.

Cardiovascular Disease

Emergencies of a cardiovascular nature undoubtedly are the most frequent of those encountered in the aged. Since there is no know method of preventing arteriosclerosis or the formation of atheromatous plaques within the lumen of the arteries, the problem in the main becomes one of limiting the damage as much as possible. Much has been learned in the past ten years about cerebrovascular disease. The value of anticoagulants in the treatment of transient focal cerebral ischemia has definitely been proven. This condition, if unchecked, tends to recur. If the first attack did not produce infarction of the brain, the danger, not only of subsequent infarction, but of future attacks of focal cerebral ischemia is greatly lessened by the proper administration of anticoagulants. Properly, such administration should be continued indefinitely and the dosage controlled by periodic checking of the prothrombin time.

Ischemia of Heart Muscle

Ischemia of the heart muscle caused by atherosclerosis of the coronary arteries is unquestionably the most frequent emergency encountered in the aged. Rest followed by graduated exercise is a well known and time-tested treatment; as yet there is no unanimity of opinion as to the value of anticoagulants in this condition. The prognosis in coronary occlusion depends largely on the size of the infarct formed. It might be stated that spontaneous rupture of the heart is not an infrequent occurrence; in 1934 the author found an incidence of one in every 40 necropsies performed in a Minnesota State Hospital. A similar ratio had been reported from a hospital in England, and approximately the same frequency was later encountered in two other Minnesota state hospitals.

Much work has been done on vascular repair, where localized stenosis of an artery has been demonstrated. Infarction of the brain or of the heart might be prevented if the procedure is carried out early enough; the same can be said about gangrene in other parts of the body. Such highly specialized surgery, however, can be done only in centers where adequately trained personnel and necessary equipment are available. Rapid progress is being made in vascular surgery and the field undoubtedly will continue to expand.

The Brain

As a rule there is some shrinking of the brain in old people. For this reason intradural hematomas, which would cause death in a younger person as a result of increased intracranial pressure, may cause few or no symptoms in old people. It is not infrequent to find unsuspected intradural hematomas at necropsy in the older age group.

Cerebral Hemorrhage

Cerebral hemorrhage is another emergency frequently presenting itself in the aged, and here again there is a trend to more active treatment. A greater use of angiography is advocated by many in cases of suspected cerebral hemorrhage as well as in cerebral thrombosis and cerebral ischemia. There also is an increasing trend to early spinal or cisternal drainage for the purpose of removing some of the blood in order to prevent adhesions.

Hypertension

Since hypertension is a predisposing factor in cerebral hemorrhage, it would seem advisable to lower the blood pressure whenever possible in persons having hypertension. In recent years Rauwolfia Serpentina has been used widely as a hypotensive agent. It should be recognized, however, that this drug may and frequently does induce severe mental depression, which in turn may create an emergency. Several of the monoamino oxidase inhibitors have hypotensive properties and may be useful in lowering blood pressure. One of these is tranylcypromine, which was recently placed on the market under the trade name of Parnate. In the three years I have used it for relief of mental depression, I have found it valuable as a hypotensive agent in a number of instances.

Brain Tumors

Brain tumors often are overlooked in the

aged and a diagnosis either of arteriosclerosis or senility is made. For almost 33 years in state hospital practice I did cisternal puncture as an integral part of the examination given all newly-admitted patients. Based on the study of more than 18,000 specimen of cisternal fluid it can be stated that an increase in the cisternal fluid protein is an indication either of an active pathological process in the nervous system or of a generalized systemic disease. Neither uncomplicated arteriosclerosis nor senility per se produces an increase in the cisternal fluid protein. It is worthy of mention that in some cases such increase was the only clue which led to the diagnosis of expanding intracranial lesions.

Case 1.

A woman 75 years of age was admitted to the Rochester State Hospital on May 5, 1959. In 1957 she had become forgetful, incontinent and untidy. In 1958 a cholecystectomy was performed. Her mental condition steadily became worse. At times she would not recognize her own children. Her gait was unsteady and she would frequently stumble and fall. The preadmission diagnosis was senility.

On admission the blood pressure was 160/80. The cisternal fluid protein was 140 mg. per cent. On May 23, 1959, she was examined by a noted neurologist, who reported that his findings were indicative of a cerebral degenerative process. On August 10, 1959 a cisternal pneumoencephalogram showed a shift of the pineal body to the right. On August 12, 1959 a craniotomy was performed and a large tumor, 7x6x6 cm. weighing 105 grams was removed. It had displaced all of the right frontal lobe and half of the left and apparently had arisen from the falx. The pathological diagnosis was psammomatous meningioma.

The patient withstood the operation, which lasted 7½ hours, very well and made an uneventful recovery. The mental improvement was rapid as well as striking. She was able to leave the hospital on October 8, 1959. The last report dated October 8, 1960, stated that she was living in a nursing home and was making a fairly good adjustment.

Emotional Depression

Emotional depression is frequently encountered in the aged. It may be a manifestation of organic pathology, especially of the brain; again, it may be functional, either endogenous in origin or a reaction to somatic illness or some environmental or life situation. Often it is difficult, if not impossible for a time, to determine whether or not the depression is basically organic or functional in nature. In either case it is well to treat the condition symptomatically while searching for the cause. If the depression is on a so-called functional basis, it may lift promptly when active treatment is instituted; if it is organic in nature, some relief may be obtained and no harm is done. No patient should be denied treatment merely on the ground that he is old.

Treatment

Whether or not the treatment should be chemical or electroconvulsive depends largely on the experience and preference of the therapist. If chemotherapy is used, certain basic principles should be kept in mind. The first is that old people do not tolerate barbiturates very well; prolonged use of barbituric acid derivatives may easily superimpose toxic mental symptoms on the original depression and thus complicate the clinical picture. The second is that unless there is agitation with the depression, phenothiazines in general are not indicated; they may give rise to agitation, confusion, and other unfavorable symptoms in the aged even though the dosage administered is comparatively small.

My personal preference is first to use one or more of the monoamino oxidase inhibitors. If that is not effective, electroconvulsive treatment is instituted. Unless there are definite contraindications, the risk of electric convulsive therapy, when given in conjunction with succinylcholine chloride, is comparatively small in the aged. In my personal experience the oldest patient given this form of treatment was 87 years of age, and a number of patients were 80 years or more. As several of the monoamino oxidase inhibitors have hypotensive properties, a careful check should be kept of the blood pressure. Since the hypotension may be of the orthostatic type the blood pressure should be checked regularly with the patient in a standing as well as in a sitting position.

Organic Deterioration

The tendency to consider depression in the aged a part of organic deterioration and therefore irreversible in nature is illustrated in the following two case reports. The woman described in Case 2 was thought to be senile and the man reported in Case 3 was diagnosied as having mental deterioration caused by arteriosclerosis. Both responded well to treatment.

Case No. 2

A white woman, 73 years of age and married, was admitted to the Rochester State Hospital on April 12, 1956 with a diagnosis of senile psychosis. She had been well until October, 1954, when she became agitated and depressed. In March of 1956 she had attempted to commit suicide. At the time of admission she was agitated and depressed. She refused to take food and fluids. She constantly picked her fingers and clothes. She expressed the idea that both the food and the water served her were poisoned by people who wanted to get rid of her. The fact that the physicians and the nurses ate some of the food and drank some of the water did not change her ideas. She remained actively suicidal, saying that she would rather die suddenly than slowly by poisoning. She made a number of attempts at suicide by strangulation.

Several types of tranquilizers were administered, but none had any appreciable effect. She remained suicidal and calmly stated that she would continue her effort in that direction until she succeeded. She was therefore placed on electroconvulsive treatment given in conjunction with succinylcholine chloride and pentothal. The response was prompt; she became cheerful, pleasant, and co-operative. It was not long before she was able to go home, and return to the hospital later for treatment on an outpatient basis. In the period between August 13, 1956 and September 13, 1957 she had a total of 69 treatments. After that she failed to return for the treatments which were given on a maintenance basis.

After some months she again became depressed and agitated. A second course of electroconvulsive treatments was commenced on November 19, 1958; again she responded readily. She was able to be home most of the time and continue the treatments on an out-patient basis; occasionally however, it became necessary for her to remain in the hospital for short periods of time in order for the treatments to be given at shorter intervals. Up until May 30, 1960 she had a total of 54 treatments in the second series. After that she failed to return. She died at home on December 30, 1960 at the age of 77. Electroconvulsive treatment in her case was not only life-saving, but it allowed her to enjoy several extra years at home with the family.

Case No. 3

A white man, 71 years of age and married, was admitted to the Rochester State Hospital on May 19, 1947. The preadmission diagnosis was psychosis with cerebral arteriosclerosis. His condition was poor both physically and mentally. The peripheral arteries were of the pipe stem variety. Several toes were blue and showed evidence of early gangrene. There were ulcers on one leg. Both the foot and the leg were red and showed signs of threatening gangrene. Mentally the patient was unresponsive. As he would take neither food nor fluids, feeding through a nasal tube was resorted to.

The orthopedic consultant recommended mid-thigh amputation of one leg and of several toes on the other foot. The wife, who was a Christian Scientist, refused to give consent for any form of treatment and threatened legal action if the patient was not placed on treatment by a Christian Scientist reader. She was told that she might take the patient to another hospital for such treatment or take him home and have the treatment given here. This she was not willing to do. Finally a compromise was reached; we were to treat the patient by our method and she was to have Christian Science treatment given in absentia. She refused to give permission for surgery, however.

The patient did not respond to any medical treatment then available. Electroconvulsive treatment was recommended as a last resort. She finally consented to such treatment, but for a time would not give written consent. When the patient continued to deteriorate physically, she eventually gave her consent in writing.

After a few treatments, given in conjunction with curare, the patient took nourishment and responded mentally. From what appeared to be a greatly deteriorated individual emerged a cultured elderly gentleman with a pleasing personality, who showed no evidence of mental deterioration. He lost a few toes, but he retained a useful leg. He was able to leave the hospital on November 18, 1948 in a normal mental condition.

A few months later he suffered a relapse and was returned to the hospital on April 1, 1949. This time the wife sent a note along requesting that electroconvulsive therapy be commenced immediately. Again the response was dramatic. He went home on June 27, 1949 and returned for maintenance treatment on an outpatient basis until October 26, 1951. On March 24, 1952 he returned to the hospital, having suffered a stroke which partially paralyzed him. Death, due to pneumonia, occurred on April 13, 1952, at the age of 75.

At the age of 71 the patient was thought to have suffered reversible mental deterioration due to arteriosclerosis. Active treatment, however, served to restore him to mental normalcy. Physically he improved greatly. Even though he lost a few toes he retained the use of both the foot and the leg, both of which had shown impending gangrene. Except for brief relapses he remained well and was able to enjoy life at home for almost five years. The relapses occurred when he failed to return for treatments given periodically on a maintenance basis. Altogether he received 77 electroconvulsive treatments.

Comments

Careful attention should be given to the intake of food and fluid in all types of sickness in the aged. Since many old people have peculiar dietary habits and often have a strong dislike for leafy vegetables and fruit, especially of the citrous type, vitamin deficiencies are frequently encountered. This is true especially with regard to ascorbic acid. Elimination also should be given special attention. Helpless, bedridden patients must be turned frequently or pressure sores

will develop. It is important to keep both the bedfast and the semiambulant patients clean and dry in order to prevent the skin from breaking down. While all these are primarily nursing problems, it is well for the physician also to give attention to them.

The danger of aspiration pneumonia is ever present when the consciousness of the patient is impaired or his power of swallowing is diminished. Since old people may not be able to chew well, chunks of food, especially meat, may get stuck in the pharynx and cause strangulation. This danger is greatly enhanced in the above-mentioned conditions. In 1957 the immediate cause of death in eight of the 126 cases that came to necropsy at the Rochester State Hospital was either aspiration pneumonia or strangulation caused by food. In 1958 the incidence was three in 122 cases.

Attention to the purely psychiatric aspects of the patient is important during the period of convalescence or period of semi-invalidism. It is essential to stimulate the interest of the patient and to provide occupation in one form or another. Physical therapy is strongly indicated if the patient has residual muscular weakness or paralysis. If he is left to himself with nothing to stimulate his desire to get well, he is apt to deteriorate rapidly.

The mental symptoms causing most psychiatric emergencies are either excitement or depression or a combination of the two. If not checked promptly excitement may lead to exhaustion. In depression there is always an actual or a potential danger of suicide. If either the excitement or the depression is severe, the need for treatment is urgent.

The emergency may be of a social nature. Outside of the larger cities and the state hospitals there are practically no facilities for the care of acutely-ill mental patients. It can be very distressing for the children or the grandchildren to have a seriously-ill grandparent taken to court for a commitment hearing. As the number of aged in the population increases, it becomes more and more urgent that the community provide facilities for the treatment of the old patient who is acutely ill, mentally or physically. Provisions should be made for treatment of such patients in all general hospitals.

It is regrettable that the results of treatment are not always as good as they were in the three cases reported. Often the mind of the old patient deteriorates faster than does the body, eventually leaving him in a vegetative state. Many of the wards in our public mental hospitals are crowded with such people. It is one of the prices we pay for the conquest of pneumonia, "the friend of the aged." In this connection the question may well be asked as to what length we are justified in going to preserve life when the mind is gone and existence is on a vegetative level.

Summary

Let it be said that the old patient is apt to have two strikes against him when he steps into the physician's office. Subconsciously we are prone to attribute many of his complaints and even our own findings to arteriosclerosis or to age, and therefore fail to arrive at a correct diagnosis. In all fairness, let us give the old patient the same unbiased attention that we give the younger.

CELIAC SYNDROME

The etiology is not definitely known. Vitamin B may be a factor. The onset is usually gradual, occurring before age 5. Diabetes and the celiac syndrome often occur in the same family. Hypothyroidism and hypoparathyroidism and heredity may be factors in the etiology.

There is fretful irritability, poor appetite, foul, frothy, bulky, fatty stools. There is pallor, weakness, and failure to gain in height and weight. There is a disconsolate expression, the arms and legs are thin, and the buttocks appear wasted. The abdomen is huge. Edema may develop in the face and legs.

Rickets, tetany, dwarfism, and fractures due to osteoporosis may occur. There may be glossitis and stomatitis.

Treatment of celiac disease consists of administration of banana, protein milk, casec, vegetable and starch free diet. ACTH and cortisone may be beneficial.

Compleat Pediatrician

PREFRONTAL LOBOTOMY

Improvement and Release

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IN AN EARLIER paper[1] the opinion was advanced that the brain operation known as prefrontal lobotomy had fallen into disuse as a therapy for the severely mentally-ill, particularly since 1954 when ataractic drugs came into general use. To determine the extent and nature of the decline in the use of psychosurgery we conducted a survey of the seven state hospitals in Minnesota, inquiring of each the number of lobotomies performed per year since 1950. The results provided firm confirmation of our impression; during the five-year period 1950-54, 730 were performed as compared with only 32 during the period 1957-61, a decrease of 96 per cent.

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Of the 32 performed during the last five years, 27 were done at Anoka; at this writing Anoka is the only state hospital in Minnesota employing this therapy, at the rate of about six per year. We continue to recommend and practice psychosurgery in spite of popular opinion to the contrary, because we consider opposition to the practice to be based on unfortunate past experience, which resulted from poor selection of cases, or perhaps from lack of selection. This opinion is supported by the fact that the program continues to be successful with selected cases which have been refractory to other treatments.

As the first paper reported, of 83 cases that underwent surgery through 1956, it was found that 35 per cent were on discharge status and that 75 per cent improved following surgery. In

1959 a more controlled study was initiated, utilizing objective data and experimental measures including psychological examination both before and after surgery. That data we intend to report in the near future as the third and final part of this series. Between the 1956 and 1959 series 11 patients underwent the operation at Anoka, and they comprise the material for this paper. Since the number of subjects operated during this interim was small, it was thought appropriate that they provide the subjective aspect to supplement the objective, statistical approach of the first and third studies.

Classifying the State of Recovery

Provisional discharge:

This is a status of semirestoration usually lasting one year, during which the patient lives in the community but remains committed by the court and may be returned to the hospital in the event of relapse.

Electroshock Therapy:

This is also known as electrotonic therapy and electroconvulsive therapy.

Occupational Therapy:

This is self explanatory.

Industrial assignment:

This consists of therapeutic and unpaid work within one of the hospital departments, such as the kitchen, farm or grounds.

Case Reports

Table 1 presents the statistical information and gross data in summary form for rapid absorption, but the emphasis remains on the abstracted individual cases. Since this is not a statistically-oriented paper containing a control group for comparison, each subject serves in a sense as his own control by comparison of his history before and after treatment. In each of these cases we feel that there is a sufficient interval between the onset of illness and surgery to contrast the efficacy of prelobotomy therapies with those given postsurgery. It is worth underscoring that these are not selected cases or cases picked "at random" to illustrate results, but include *every* surgical case for the two-year period.

Case 1.

This female completed 12 years of school, married, and was a housewife until her first psychiatric difficulty at age 33. Within the next four years she had three psychiatric hospitalizations, receiving both chemotherapy and 55 electroshock treatments with only mild palliative help. She was admitted to Anoka for her fourth hospitalization at the age of 38, described as hostile, depressed, guilty, anergetic, fearful, perfectionistic, anxious, and anorexic; she had been a psychiatric semi-invalid since her first hospitalization. Three months following admission the psychiatric consultant offered a diagnosis of obsessive-compulsive reaction and recommended lobotomy, should other therapeutic procedures fail. Psychotherapy, both group and individual, and chemotherapy were attempted; but none were successful.

A lobotomy was performed five months after admission and improvement noted by ward personnel within 24 hours in the form of lessened discomfort, and since surgery she has required no tranquilizing medications. Two weeks following lobotomy she was again seen by the psychiatric consultant, who observed that she was calm and adjusting very well. She then left the hospital to return to her family. Six months later she reported to the county case worker that she no longer experienced panic as before but remained socially insecure; therefore arrangements were made for her to see a psychologist once a month. After one year the psychologist noted that the patient was having fewer and less intense bouts of depression and anxiety, was more socially active, and had assumed a clerical position. She has remained out of the hospital to date, almost four years from the time of surgery.

Case 2.

This single male had apparently led a relatively normal existence through high school, had been active in high-school sports, but shy and withdrawn. Immediately following graduation he struck his mother and complained of electricity in the air, aberrations which resulted in his commitment at the age of 18. On admission he expressed ideas of reference, had delusions of persecution, and was experiencing auditory hallucinations. He was diagnosed as a paranoid schizophrenic and a lobotomy was recommended; but permission was refused by the relatives. He remained hospitalized for 11 years, was markedly assaultive, responded poorly to electroshock and drugs, and then so regressed that he choked a male patient into a moderate degree of cyanosis. Further, he became incoherent and irrelevant and did no work in the hospital. Permission for lobotomy was again sought, this time successfully.

Improvement following surgery was gradual but sustained. Before surgery he averaged 8.2 assaults per year and after surgery only 2.75; but for the last 2 years he has had no assault report. At present he is stabilized on a combination of maintenance electroshock therapy and drugs, is a reliable worker, and presents no management problem. He has full liberty and has not abused it.

Table 1

Summary Data

Case	Sex	Civil State	Education	Age at First Psychiatric Contact	Age at Surgery	Diagnosis	Symptoms	Interim Surgery to Improvement	Interim Surgery to Release	Comments
1	F	M	12	32	38	Obsessive Compulsive	Depression Guilt Anorexia	1 d	2 w	Community adjustment.
2	M	S	12	18	29	Chronic Schiz.	Hallucinations Assaultive Incoherent	10 w Sustained after 2½ y	——	Industrial worker with liberty.
3	F	S	12	20	21	Catatonic Schiz.	Hallucinations Confused Withdrawn Hostile	3 m	4 m	Community adjustment.
4	M	S	13	29	31	Paranoid Schiz.	Hallucinations Suicidal Assaultive Eloper	1 m Sustained after 16 m	1 y 11 m	Community adjustment
5	M	S	12	27	31	Paranoid Schiz.	Hostile Profane Delusional	5 m	——	Worker with liberty. Calm, cooperative
6	F	S	12	24	30	Paranoid Schiz.	Hostile Grandiose Negative	8 m Sustained after 3 y	3 y 8 m	Rehospitalized at present and being readied for release.
7	M	S	16	19	25	Paranoid Schiz.	Compulsive Pacing Anxious Seclusive	2 w Sustained after 3 y 4 m	——	Marked relief but with some residuals.
8	F	D	9	25	51	Schizoid Personality	Noisy Abusive Hostile Resistive	2 y 7 m	——	Less hostile, little worrisome. Reliable worker.
9	F	S	12	36	47	Paranoid Schiz.	Hallucinations Delusions Argumentive	2 m Sustained after 1 y 9 m	2 y 2 m	Community adjustment.
10	F	M	13	62	64	Chronic Brain Syndrome	Alcoholic Depressed Haughty Agitated	1 d. Not sustained	Deceased	No relief up to 4 years later at time of death.
11	F	S	0	3	19	Sociopath with mental deficiency	Homicidal Destructive Smearing	2 m. Sustained after 1 y 9 m	——	Dramatic improvement. Worker with part liberty. Cooperative and pleasant.

Case 3.

This female completed high school, remained single, and was employed up to the onset of her illness at age 20. She was admitted as confused, withdrawn, experiencing auditory hallucinations of a derogatory nature, and with a diagnosis of catatonic schizophrenia. Nine months after admission she was seen by the psychiatric consultant, who found her to be psychotic and, because of her poor response to a total of 43 electroshock treatments and to chemotherapy, recommended a lobotomy.

Three months after surgery the patient left the hospital on a 30-day visit and on her return was reported to have done well. At this time she was again seen by the psychiatric consultant who found her to be

pleasant, free of delusions, nonhostile, and experiencing no hallucinations. On his recommendation she was placed on provisional discharge and has not returned to this hospital during the four years since her release. She required no medications after lobotomy.

Case 4.

This single Cuban male came to the United States as a student, but within seven or eight months began to show psychotic symptoms. He was admitted to Anoka as voluble, preoccupied with religion, suspicious of the food, and convinced that the Federal Bureau of Investigation wanted to deport him; he was also experiencing auditory and verbal hallucinations. The diagnosis was paranoid schizophrenia. During the first few months he attempted escape on at least six occasions, several times clad only in pajamas. Early treatment included drugs and electroshock therapy, the latter regressing him to the extent that he became incontinent and spoke only Spanish. Brief remissions were followed by relapses and his escape behavior continued. During the winter he did escape and was found two weeks later, emaciated and frost-bitten, in an unheated farm building where he had hidden in near-zero temperatures. Attempts to save his legs were futile and he underwent a bilateral leg amputation. In spite of lack of protheses he attempted to elope later. He was then seen by the psychiatric consultant, who recommended prefrontal lobotomy, which was done two years and four months after admission.

One month after surgery he was seen by the psychiatric consultant, who described the results as "excellent," although the patient continued to express psychotic ideas. Several relapses occurred up to 16 months following surgery but electroshock therapy and chemotherapy produced good remissions. He desired to return to Cuba and did so when discharged from the hospital one year and 11 months after surgery, when he was apparently nonpsychotic and traveled alone from Minnesota to Florida to Cuba. Recent correspondence with the hospital chaplain indicates that the patient continues to function well and lead a constructive life in Cuba.

Case 5.

This male completed high school and made an apparently successful adjustment as a casual laborer until age 27 when he was admitted to a Veterans Administration hospital with a diagnosis of schizophrenic reaction, paranoid type. He had neither married nor evidenced indications of heterosexual interest. On admission to Anoka three months after admission to the Veterans Administration hospital, he expressed delusions concerning his employer, and while he was friendly to the examiner he was profane and hostile toward his imaginary persecutors. Early in his hospitalization he attempted escape on several occasions. Prelobotomy treatment included electroshock, insulin shock, and group therapy. He responded little to any of the treatments, was discharged twice, only to be returned to the hospital. He underwent psychosurgery four years after admission.

Since immediately following lobotomy the patient was described as somewhat depressed and disinterested in his environment, he was placed on chlorpromazine 50 mg., four times daily, and regained some initiative, but continued to express delusional ideas of persecution. It was noted however, that following lobotomy, there was less tension and pressure behind these ideas, and five months after lobotomy the ward physician noted that the surgery had helped the patient control his outbursts. Six months after surgery the patient was again provisionally discharged but returned to the hospital after one year and three months. He received an industrial assignment for the first time in four and a half years of hospitalization and has continued the assignment to the present. He is not now on medication and is no longer expressing paranoid ideas. The ward nurse states that he is getting along well, is in good contact with reality, has a sense of humor and is not pugnacious or destructive. His mother visits and says that the patient could now be accommodated at home, were it not for the fact that the stepfather and the patient are incompatible.

Case 6.

This single white female completed high school and three years of music training. The first psychiatric contact noted was admission to a state hospital at age 24 where she was treated with electroshock and discharged after nine months. She was rehospitalized five years later and described as sullen, negative, and sarcastic. She demonstrated a superior air and showed no insight, but was willing to remain in the hospital for "rest." During the early months she expressed ideas of being raped during the night, and there was much somatization of her illness. The determinant diagnosis two months following admission was paranoid schizophrenia, while the diagnostic impression of the psychiatric consultant favored psychopathic personality. The patient was placed in a security room, because she constituted "a severe threat to herself and personnel involved." Twenty-five electroshock treatments produced no relief of symptoms except mild reduction of anxiety; and individual psychotherapy was unsuccessful. Choral hydrate was administered for sedation, but no tranquilizing drugs were given prior to the lobotomy five months after admission and six years after first psychiatric contact.

Two months postoperatively the patient was described as improved and less anxious. She was assigned to occupational therapy and the mending room and was transferred to an open cottage. She was also assigned to a typing class, but her attendance was irregular and her manner continued to be hostile. This assignment was then discontinued and she was transferred to the kitchen. The first real change occurred after 10 months when she expressed content with her kitchen work and a desire for further vocational training. Tranquilizing drugs were started two years after surgery and she continued to become more co-operative and pleasant. Three years from the date of lobotomy she was no longer negative, hostile, or sarcastic; and while improvement has been gradual, it has been fairly well sustained. She was provisionally discharged three years, eight months after lobotomy and remained away for seven months. At present she is back in the hospital undergoing modifications of her former plans.

Case 7.

This single male obtained a Bachelors Degree with a major in mathematics, worked for one year and eight months, but then resigned because of "weakness." He was examined for heart palpitation and tachycardia, but

the examination was negative for organic illness. Following his resignation he became compulsive to the point where it took him two hours to dress and shave; two months later at age 25 he was admitted to Anoka. On admission he was circumstantial, feminine, phobic, with genital-somatic preoccupation and a handwashing compulsion. The determinant diagnosis was paranoid schizophrenia. Within several weeks of admission the psychiatric consultant saw the patient and recommended that electroshock therapy be tried and that if he did not respond, he receive a lobotomy. He had 25 electroshock treatments and group therapy with no improvement. He was then seen by a staff psychologist in individual therapy, following which the consultant found him to be greatly improved and recommended that lobotomy be delayed and psychotherapy continued. However, the psychologist left the staff and the patient then regressed markedly. Surgery ensued.

Two weeks later the consultant saw the patient and found him to be "remarkably improved." He was no longer washing his hands, had gained weight, and was working on the ward and in the library. Four weeks after surgery he was provisionally discharged but returned after one month because of a recurrence of symptoms, including compulsive activities which absorbed six to eight hours of his waking day. Within one month he again improved, was assigned to the ground crew, gained weight, and was off drugs. Four months later he again regressed, began chemotherapy, but did poorly for the next two years. The consultant saw him three and one half years after lobotomy and thought him less anxious; he was making occasional home visits. Sustained improvement did not occur until some three years after surgery. At present the ward nurse considers him "much better" than before surgery but still somewhat compulsive. He works in the hospital but is usually late for both work and meals because of his excessive neatness. He has full liberty, makes frequent visits home, but does not engage in any social activities within the hospital. He requires no help in his personal care and is reliable.

Case 8.

This divorced female had completed the ninth grade and had her first difficulty at the age of 25 when admitted to a state hospital. She was released as "improved" two years and nine months later, but quickly relapsed and has remained in the hospital since 1936. After fourteen years she became irritable and surly, resisted industrial assignments, and threatened to kill a female employee. Homosexuality was suspected. After receiving 10 electroshock treatments she became somewhat more co-operative, but tranquilizers had only mild and temporary effects. She was oriented, without hallucinations or delusions; and diagnoses varied chronologically among psychopathic personality, paranoid schizophrenia, passive-aggressive personality, and finally schizoid personality.

A bilateral prefrontal lobotomy was performed 27 years after admission, at age 51. Subsequent medication had, as before, only a temporary effect until two and a half years following surgery. Since then, a period of more than two years, the patient has maintained a better level of adjustment within the hospital. The ward nurse describes her as less hostile, quite asocial, very reliable, and somewhat of a 'worrywart', but with very few temper tantrums at the present time. She represents a problem in extra-hospital placement in that her parents are quite elderly and their housing accommodations inadequate for her return there.

Case 9.

This single female completed high school and entered a convent but for obscure reasons did not remain. She worked at a variety of jobs until her first psychiatric contact at age 37 when she was admitted to a state hospital suffering from sexual and religious delusions and auditory hallucinations, also engaging in hostile behavior and using foul language. She received 27 electroshock treatments with minimal benefit and was released after two and a half years' hospitalization to live with her parents. At age 42 she was readmitted with the same diagnosis of paranoid schizophrenia. She received 51 hours of insulin shock (5,270 units), group therapy, 26 electroshock treatments and chemotherapy, with very little change in her condition; she remained delusional and hallucinated. Three and a half years after admission, permission for lobotomy was requested but denied, and not granted for two years, during which the patient did not improve.

Lobotomy followed initial psychiatric contact by 11 years. Progress notes of the ensuing year indicate that the patient continued to demonstrate occasional hostile outbursts but that she was much improved over her prelobotomy status. Five months after surgery she went on a 30-day visit and did well. The psychiatric consultant saw her six months after surgery and found her to be no longer hostile and not pressured by her delusions; she continued to hallucinate, however, but was able to perform an industrial assignment within the hospital. Various tranquilizers and electroshock treatments provided no further improvement until one year and nine months after operation, at which time she responded well and was released five months later. She remains out of the hospital to date, almost three years from time of release.

Case 10.

This married female attended one year of college and was described in her earlier years as bright, a heavy drinker, perfectionistic, asocial, selfish, and dependent. First-noted psychiatric contact was at age 62 when she was hospitalized for three weeks with a diagnosis of involutional depression. She responded somewhat to chemotherapy but three months later experienced a relapse. A second hospitalization lasted four months, during which time she received drugs and eight electroshock treatments with brief remission but early return of symptoms. Many hours of psychotherapy produced no benefit. Within 10 days of release she again relapsed and was admitted to Anoka as depressed, restless, anxious, tense, and haughty; drugs gave little improvement. She had an abnormal electroencephalogram tracing, but skull rays were normal and the diagnosis of involutional psychosis continued.

She received a bilateral prefrontal lobotomy 11 months after admission to Anoka and 19 months after her first psychiatric contact. The neurosurgeon

found the brain under greater tension than usual but encountered no unusual amount of bleeding. Improvement was noted within the first day but was of relatively short duration. Next she was tried on a home visit for three weeks but did not do well. She remained anxious, agitated, irritable, and inconsiderate of other patients up to her death almost four years later due to bilateral bronchopneumonia. Shortly prior to death the mental diagnosis was changed to CBS with cerebral arteriosclerosis.

Case 11.

This single, young, illegitimate female spent the first two years of life in a children's home. Mental deficiency was confirmed by psychological examination at the age of three years, eight months, with an intelligence quotient of 23. Repeat examination at age five years, four months, showed an intelligence quotient of 34. Destructive behavior began at age 13, when she was reported to have picked up a dog and smashed it against a post. Increasingly destructive behavior resulted in admission to a state facility at age 16 years, nine months, where she was hyperactive and destructive with periodic tantrums during which she destroyed clothing, stuffed the toilet stool, rocked back and forth, and expressed hostility toward the other patients. Chemotherapy was of limited value. One year and four months following her admission, she strangled an elderly female patient, and while futile attempts were made to revive the patient, she laughed and clapped her hands. She told of having drowned a child earlier, but this was unverified. Three days after the murder she was transferred to Anoka, where on admission she stated freely that she enjoyed killing. Her destructive behavior continued; she began smearing feces; and her behavior necessitated a quiet room much of the time. During the first year at Anoka she consumed almost 4000 hours of nursing time, destroyed 700 gowns, 500 sheets, 100 bedspreads, 100 robes, 10 mattress pads, 80 blankets, three mattresses, two pairs of shoes, two dresses, and numerous eating utensils. She remained in seclusion and under constant sedation the entire first year; yet she continued to pick cement from around the tile and chip plaster from the ceiling. She was seen by the psychiatric consultant, at which time she was co-operative, expressed no remorse for her past behavior, and admitted of no hallucinations or delusions. A lobotomy was recommended and the diagnostic impression was for mental deficiency in a primary psychopath.

Prefrontal lobotomy was performed and two months after surgery the ward physician described the patient as improved in that she showed a heightened interest in her surroundings, was obedient and not aggressive, and no longer smearing or destructive. Psychological examination at this time indicated a verbal intelligence quotient of 63, a performance intelligence quotient of 45, and a full scale intelligence quotient of 53. She continued guilt-free for her past behavior but now indicated no further desire to murder. She was replaced on tranquilizing drugs shortly after surgery. Five months after surgery, the patient was working on the ward and socializing better. There was occasional smearing of feces and tearing of clothing, but this had decreased considerably relative to the preoperative state. Six months after surgery, she was seen by the psychiatric consultant who found her to be pleasant and again expressing no guilt but with no further murderous impulses. At this point, she was placed on individual occupational therapy and given an industrial assignment in the laundry, but without ground privileges; limited ground liberty followed 10 months later after close observation. Psychological examination one year, three months after lobotomy revealed a verbal intelligence quotient of 64, a performance intelligence quotient of 56, and a full scale intelligence quotient of 58. Eight months after surgery, there was a brief return of bragging of her past deeds and she received 15 electroshock treatments, after which she improved. At present, four years after surgery, the patient continues to do well on a regime of a half day of industrial assignment at the laundry, a half day of occupational therapy, and 200 mg. chlorpromazine. Today she is nondestructive, continent, has partial liberty and takes an active part in seeing that her group arrives and departs on time. Her present intelligence quotient's are: verbal 66, performance 60, and full scale 61.

Discussion

The finding of 36 per cent (4/11) on discharge status following surgery compares with the 35 per cent reported earlier and is probably a reasonably stable figure. Considering the severity and length of illness in such a group this is gratifying. The 91 per cent (10/11) improved following surgery in this series is greater than the 75 per cent reported before and may be due to improved selection criteria or to the greater variety of available drugs; we noted for example, that several patients responded well to thioridazine, which was not available before their surgery; and we think that they may have done well with it, even without surgery. On the other hand, we do not discount the possibilities that thioridazine may be particularly effective in the postlobotomy patient or that the lobotomy made the patient more amenable to other therapies.

An additional observation is of interest. Prefrontal lobotomy is not ordinarily employed until other measures have failed; yet the best results often occur in those younger people for whom the period between onset of illness and lobotomy is shortest. As study of the summarized data in Table I will indicate, it is not simply that early onset or short duration of illness militates for a good prognosis, but that both together seem to; yet it is this very combination where psychosurgery is probably least likely to be applied by most who are practicing in the field.

Summary

This paper presents the abstracted case histories and the outcome for 11 state hospital patients who underwent prefrontal lobotomy three

to five years ago. The results show that in selected cases results continue to be favorable for patients refractory to other forms of therapy including tranquilizing drugs. The thesis is maintained that psychosurgery continues to merit application in selected cases where affective interference is both pronounced and resistant to treatment and hinders constructive action.

Reference

1. Olson, G. W. and Peterson, D. B.: Improvement and release following prefrontal lobotomy. Minn Med 42:1391, 1959

WHAT'S YOUR DIAGNOSIS?

A 21 year old married female was admitted to the hospital with a six hour history of abdominal pain.

The onset was fairly sudden with pain in the anal area associated with the desire to defecate. Pain was steady with an occasional overlay of crampy pain. An enema, early in the course of the illness, had given relief for an hour or two. The pain then spread to the lower half of the abdomen and gradually to the upper abdomen. When the pain spread to the upper abdomen she experienced some dyspnoea when lying down. Mild nausea was evident, but there was no vomiting.

The past history was essentially noncontributory. The menstrual periods were normal with the last one two weeks previously. There was no known recent infection.

Physical examination revealed no evidence of upper respiratory infection. There was generalized abdominal tenderness, very marked in the lower half of the abdomen, and especially in the lower quadrant of the abdomen. Rebound tenderness was evident in the lower abdomen, but this finding was equivocal in the upper abdomen. No masses were palpable. The pelvic examination was not wholly satisfactory due to pain and poor cooperation. No masses were identified, but the area of both adnexae was tender with somewhat more tenderness on the left than on the right. The uterus seemed retroverted, and pain was reproduced when the cervix was manipulated.

Temperature was 98.6. Blood pressure 104/60, Pulse 78.

The urine examination was negative for albumin and sugar with one or two red blood cells in a catheterized specimen. Hemoglobin was 13.1. White count was 18,900. Neutrophile 75; lymphocytes 21; bands 4. Chest X ray was negative.

Flat and upright films of the abdomen revealed gas scattered throughout the colon with a small amount of gas in the small bowel. There was no free gas in the peritoneal cavity.

The patient was operated on under the diagnosis of an acute abdomen.

What's Your Diagnosis? Turn to page 558.

She was suffering from the melancholy of black bile, or else something she was unwilling to confess. — Galen

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Business will be either better or worse. — Calvin Coolidge

All change is not growth; as all movement is not forward. — Ellen Glasgow

ST. MARTIN'S EVIL

[Drunkenness]

Noting that drunkenness was formerly called St. Martin's Evil one might suppose that Martin of Tours had himself been a drunkard—or at least a bibbler—later delivered from alcoholism by a divine summons to regeneration. Such was not the case, however; no lurid or provocative story is forthcoming. St. Martin's Evil has a different and unsuspected origin.

Once presiding at a banquet at which Martin was present, the Emperor Maximus, desiring to honor the holy man, ordered that the wine-cup be passed to him first. To the vast astonishment of the assembled guests Martin did not sip, but promptly passed the cup directly to his Chaplain instead of to his Emperor as expected: a calculated gesture to demonstrate the paramountcy of Church over State.

Because of this relatively trivial but unforgotten incident Martin later became the patron saint of wine-drinkers; subsequently, via a curious twist of logic, drunkenness became St. Martin's Evil.

DID YOU KNOW?

The Origin of the Gold-Headed Cane for Doctors

"Part of the standard equipment of the physician of the seventeenth and eighteenth centuries was a gold-headed cane, in the handle of which was a little compartment containing some aromatic compound to counteract the smell of the sickroom and, supposedly to prevent infection."[1]

One gold-headed cane owned by Dr. John Radcliff in 1689 passed from one distinguished owner to another, finally reaching Matthew Baillie in 1809.

"Gold-headed canes were going out of fashion with physicians, and this particular one spent more and more time standing in the corner, finally going into complete retirement with its owner. After the death of this eminent and respected physician in 1823, it was presented by his widow to the College of Physicians, in the museum of which it may be seen today."[1]

1. Garland, Joseph, M.D.: "The Story of Medicine," Pages 129-130.

Character is much easier kept than recovered. — Thomas Paine

ANSWER TO WHAT'S YOUR DIAGNOSIS

(From page 557)

The abdomen contained approximately 500 cc's of blood. The right ovary showed a ruptured corpus luteum cyst measuring about 4 cms. in diameter, from which blood was flowing freely. After excision of the cyst, two units of blood were given, and the patient made an uneventful recovery.

IN DIARRHEAS



Patient: W. O. **Age:** 45 **Sex:** F **Weight** 96

Diagnosis: Functional diarrhea

Results: Definite **Side Effects:** None

Comment: Patient has been on R-1132 (Lomotil) for fifteen months with definite improvement.

ACUTE

RECURRENT

CHRONIC

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brand of Diphenoxylate Hydrochloride with Atropine Sulfate

PROMPT · SAFE · EFFICIENT



LOMOTIL directly controls the *mechanism* of diarrhea. Therefore, it acts to give symptomatic relief in all diarrheas.

Lomotil promptly arrests acute diarrhea and controls chronic or refractory diarrhea with a high degree of safety.

Pharmacologic considerations indicate that Lomotil acts on the smooth muscle of the intestines and thus lowers the excessive propulsive motility responsible for increased fluidity and frequency of stools. This localized action makes Lomotil unusually free of secondary effects.

By reducing excess propulsive motility, Lomotil assures safe, selective symptomatic control of virtually all diarrheas.

Dosage: For adults the recommended initial dosage is two tablets (2.5 mg. each) three or four times daily. Lomotil maintenance dosage may be as low as two tablets daily.

Lomotil is supplied as unscored, uncoated white tablets of 2.5 mg. and as liquid containing 2.5 mg. in each 5 cc. A subtherapeutic amount of atropine sulfate (0.025 mg.) is added to each tablet and each 5 cc. of the liquid to discourage deliberate overdosage. Recommended dosage schedules should not be exceeded.

Note: Lomotil is an exempt preparation under Federal narcotic statutes.

Detailed information and directions for use in children and adults are available in Physicians' Product Brochure No. 81. G. D. Searle & Co., P. O. Box 5110, Chicago 80, Illinois.

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Prednisolone, 16.6 mg. in 50 Gm. container and 50 mg. in 150 Gm. container; in nonsensitizing vehicle—isopropyl myristate with inert propellants—trichloromonofluoromethane, dichlorodifluoromethane.

AEROSOL

COOLS

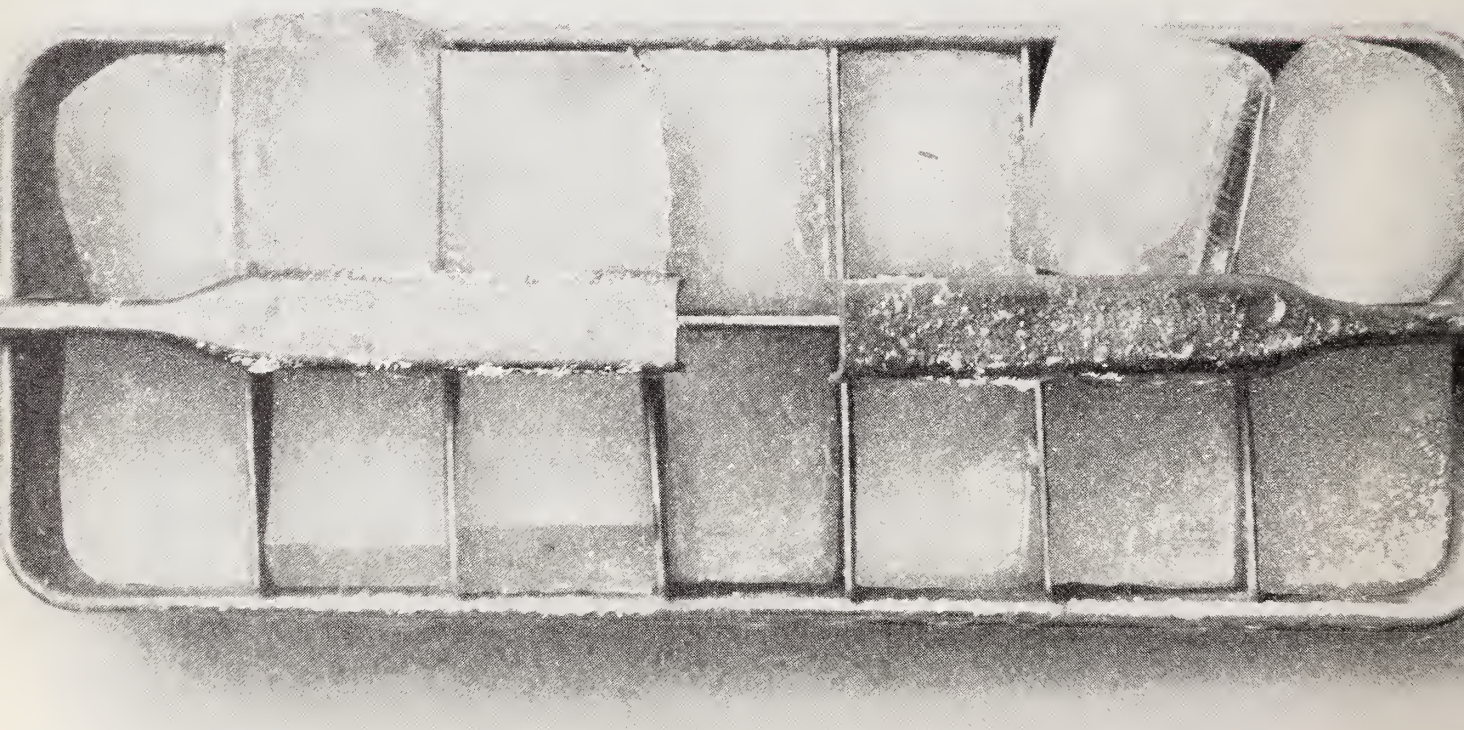
instant cooling, soothing effect • covers every part of the lesion, any area of involvement • controls the itch, delimits the area of edema and erythema • nonfluorinated—avoids risk of steroid absorption • easy to carry and apply away from home—no residue on the skin



Clinical Considerations: In allergic dermatoses, until the specific causative agent is identified and removed from the patient's environment, the condition may be expected to recur when therapy is terminated. If infection is present, appropriate antibacterial measures should be taken. METI-DERM (prednisolone) Aerosol should not be sprayed around the eyes. Contents of can are not flammable but are under pressure. Containers should be stored in a cool place and neither punctured nor incinerated. For complete details, consult Schering literature available from your Schering Representative or Medical Services Department, Schering Corporation, Union, New Jersey.

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EDITORIALS

"Fedicare"

DR. ANNIS has stated* that Fedicare would be an honest label for the government program of medical legislation. It would "remind the people that this is the federal government providing care and the federal government paying for it through the mechanism of taxes. There is nothing the federal government can give you without taking it away from you first" — *at an increase in cost of about 20 percent.*

We should be proud of the wheat farmers who voted against the government's continued subsidy. They know that government paternalism leads only to eventual government control and government ownership — the Social State.

Perhaps we can enlist the help of our farmer patients by having them write to their legislators, telling them that we too do not want to be government owned or government controlled. As in the past, we promise to take care of those who cannot afford to pay. We will take care of them on our terms; the terms of forthright medical care, without 20 percent increase in cost, without red tape, without the bureaucratic encumbrances of 13 copies. Scrap paper!

Carl O. Rice, M.D.

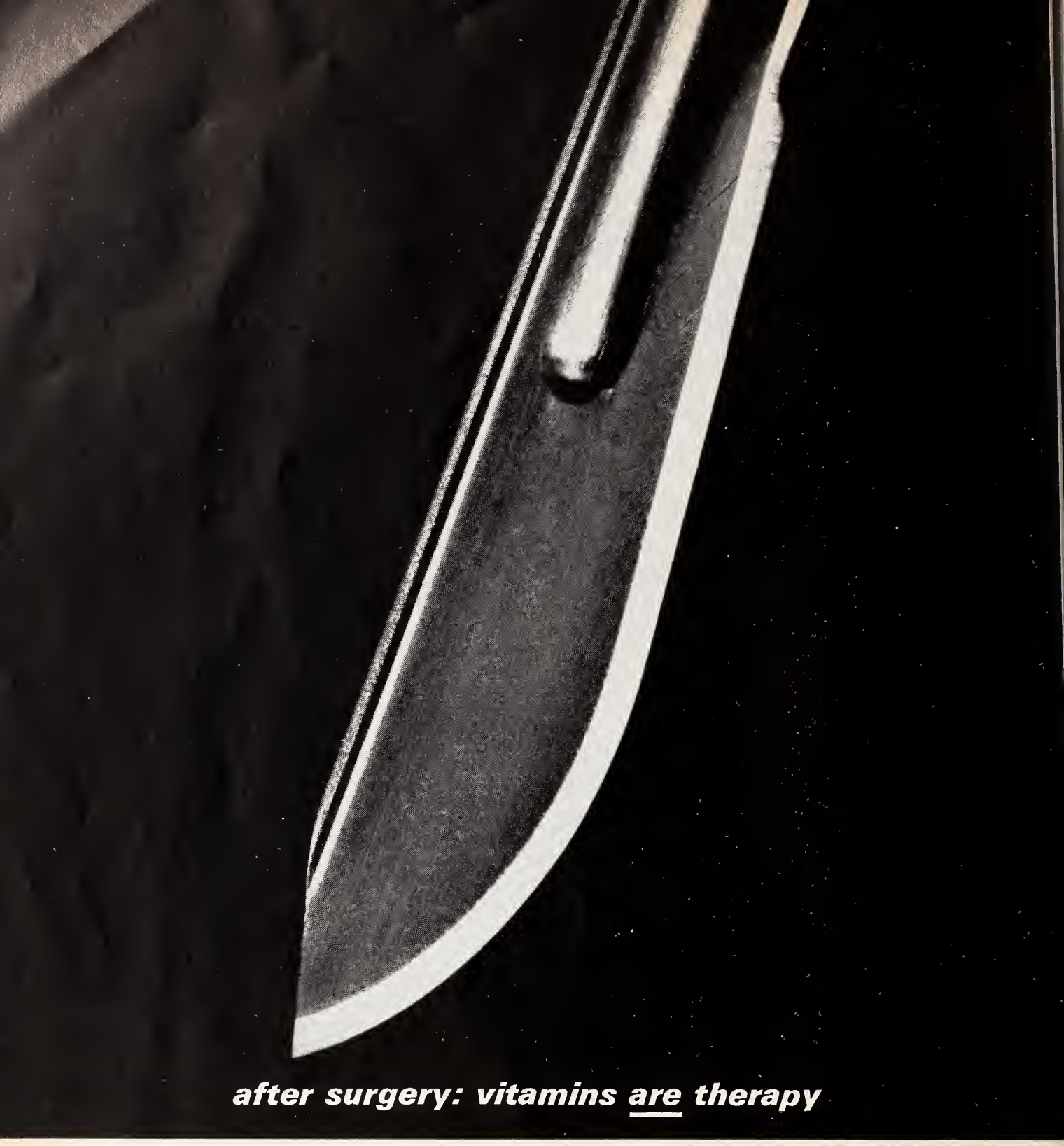
*American Phar. Assn., Miami Beach, May 1963

Athletic Injuries

INJURIES ARE as much a part of athletics as are the trophies, the satisfactions, the triumphs and the disappointments. As physicians, we must be prepared to manage these injuries. *Accurate diagnosis* is the key to success. When the physician has determined what has been injured and the extent of the injury, he can give an intelligent prognosis. He can answer the important questions: "Will he play again?" "When can he play again?" A specific diagnosis naturally leads to specific forms of treatment. There are no satisfactory methods of treating a "sore arm," a "trick knee," a "bum leg." There are effective methods of treatment for epicondylitis, a torn meniscus, a rupture of the plantaris muscle.

The correct diagnosis must be made as early as possible. Many injuries, particularly complete tears of the ligaments of the knee, can be most successfully repaired immediately after injury. A delay of several weeks or months in arriving at the correct diagnosis and indications for treatment

Continued



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Each capsule contains: Vitamin B_1 (Thiamine Mononitrate)...10 mg. / Vitamin B_2 (Riboflavin)...10 mg. / Niacinamide... 100 mg. / Vitamin C (Ascorbic Acid)...300 mg. / Vitamin B_6 (Pyridoxine HCl)...2 mg. / Vitamin B_{12} Crystalline... 4 mcgm. / Calcium Pantothenate...20 mg. Recommended intake: Adults, 1 capsule daily, for the treatment of vitamin deficiencies. Supplied in decorative "reminder" jars of 30 and 100.

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may cost the patient his best chances for a successful repair. The results of delayed or late repair of torn ligaments are not as satisfactory as those following immediate repair. The injured athlete should be examined as soon after the injury as possible; on the playing field or gym floor, in the dressing room. At this time the patient's condition will not be obscured by the reaction to injury; pain, swelling, joint effusion, muscle spasm. This is particularly important in patients with joint injuries where the ligaments must be tested for stability. A careful examination is the most important step in arriving at a correct diagnosis. The X-ray examination, while important, is not the final answer since in many cases of severe injury of the soft tissues, the X-ray may appear to be normal. The mechanism of injury is an important part of the history. There are many injuries peculiar to certain sports, i.e. javelin thrower's elbow, or to certain phases of the game, i.e. knee injuries from clipping.

A physician who is interested in sports and is a student of the game is better equipped to diagnose athletic injuries than one who is not. Knowledge of the hazards inherent in special activities should prompt the physician to insist on the use of protective equipment and prophylactic measures to prevent injuries.

The treatment of any injury can be divided into two parts; the treatment of the reaction to injury and the treatment of the injury itself. The nonspecific reaction to injury, pain, swelling, joint effusion, muscle spasm, muscle atrophy, can become more important than the injury itself. The post traumatic sympathetic dystrophy (Sudeck's atrophy) which follows some minor sprains is a good example. *Myositis ossificans* is due to the persistence of this nonspecific reaction as a result of the continued trauma of massage and forced passive motion of the adjacent joints. Immediately after injury this nonspecific reaction should be prevented by immobilizing the area of injury, applying cold (never heat) and a compression bandage. On this score I cannot resist quoting Gamgee's famous paragraph.

"Of all surgical agencies, none more beneficent than compression, none requiring more delicate manipulation, none so inadequately appreciated. Under a smooth and uniformly while lightly compressing, bandage applied to the head, the trunk, or the limbs, extravasations of blood are absorbed, the healing action is promoted, and a soothing influence is exercised. There must be no constriction — only equable adaptation of surface to surface, with the light pressure which always comforts. There must be no squeezing like that of an old college friend's hand, when seen after a long absence; such pressure as that, on tender parts, is intolerable constriction. The soothing surgical pressure is like that which you interchange with the hand of a lady, when the pleasure of meeting her is tempered by a respectful regard. Your hand adapts itself to hers, and gently presses it wherever it can touch it, but nowhere squeezes it for fear of offending."[1]

The injured member should be supported by a compression dressing until all swelling has disappeared. Active (never passive) motion should be begun as soon as the pain has subsided. In situations requiring prolonged immobilization the muscles can be kept from serious atrophy by a program of isometric exercises. The athlete should be instructed in the means of rehabilitating himself. A few minutes of explanation and instruction from the physician in regard to activities and exercises will accomplish more than hours of treatment with the whirlpool, ultra sound, diathermy, and passive stretching.

Two of the main objectives of treatment are to provide optimum conditions for healing, i.e., prevent or eliminate swelling and hemorrhage, and to preserve, as much as possible, the normal condition of the uninjured parts, i.e., prevent atrophy by regular exercise.

Following an injury, an athlete can safely begin to work out and prepare to return to competition when the limb feels sound again, when there is normal motion in all of the joints and when there is no measurable muscular atrophy. The first test is a subjective one and must be evaluated by the physician as a subjective expression by the patient. Joint motion can be measured objectively. Here, excessive motion, i. e., instability of the joint, is probably more common and more important than is restricted joint motion. Muscle atrophy can be seen and evaluated by measuring the circumference of the limbs at

Continued

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various levels comparing the injured limb with its opposite member. If the injury was of any real significance, the athlete should not compete again without the support of a special wrapping or strapping.

1. Gamgee, Sampson On the Treatment of Wounds and Fractures 2nd Edition, J. and A. Churchill, London, 1883

LEONARD F. PELTIER, M.D.
Kansas City, Missouri

To the Editor:

Editors:

I was most interested in the recent paper, "Anesthesia: An Evaluation," by Dr. Frank Cole which appeared in the April issue of MINNESOTA MEDICINE. I was particularly interested in the section in which Doctor Cole described the technique of anesthesia for tonsillectomy *without* an endotracheal tube. Doctor Cole, who has used this technique successfully in 4000 patients over the past eight years, is certainly to be congratulated on a remarkable achievement. He will undoubtedly continue to practice medicine in the manner which has been so successful in his hands.

However, the article did appear as an editorial, and, since it appeared under this protective covering, I presume that the Journal editors tacitly approve this anesthetic technique for tonsillectomy and endorse the technique for use throughout the state. I would, therefore, like to direct the following comments to the Journal editors:

The most common problems associated with the administration of general anesthesia are problems associated with the airway.

These airway problems are invariably more frequent when the surgical procedure is performed in or on the airway. (viz. adenotonsillectomy).

These airway problems are diminished if an endotracheal tube is utilized to maintain the airway.

Endotracheal intubation may be accomplished as either an elective or an emergency procedure.

Elective endotracheal intubations are invariably less dangerous, less traumatic and less difficult than emergency endotracheal intubations.

More patients have died during adenotonsillectomy under general anesthesia for want of an endotracheal tube than because of the presence of a tube.

The physician who undertakes adenotonsillectomy under general anesthesia should be capable of passing an endotracheal tube or should have an individual at hand who can do so.

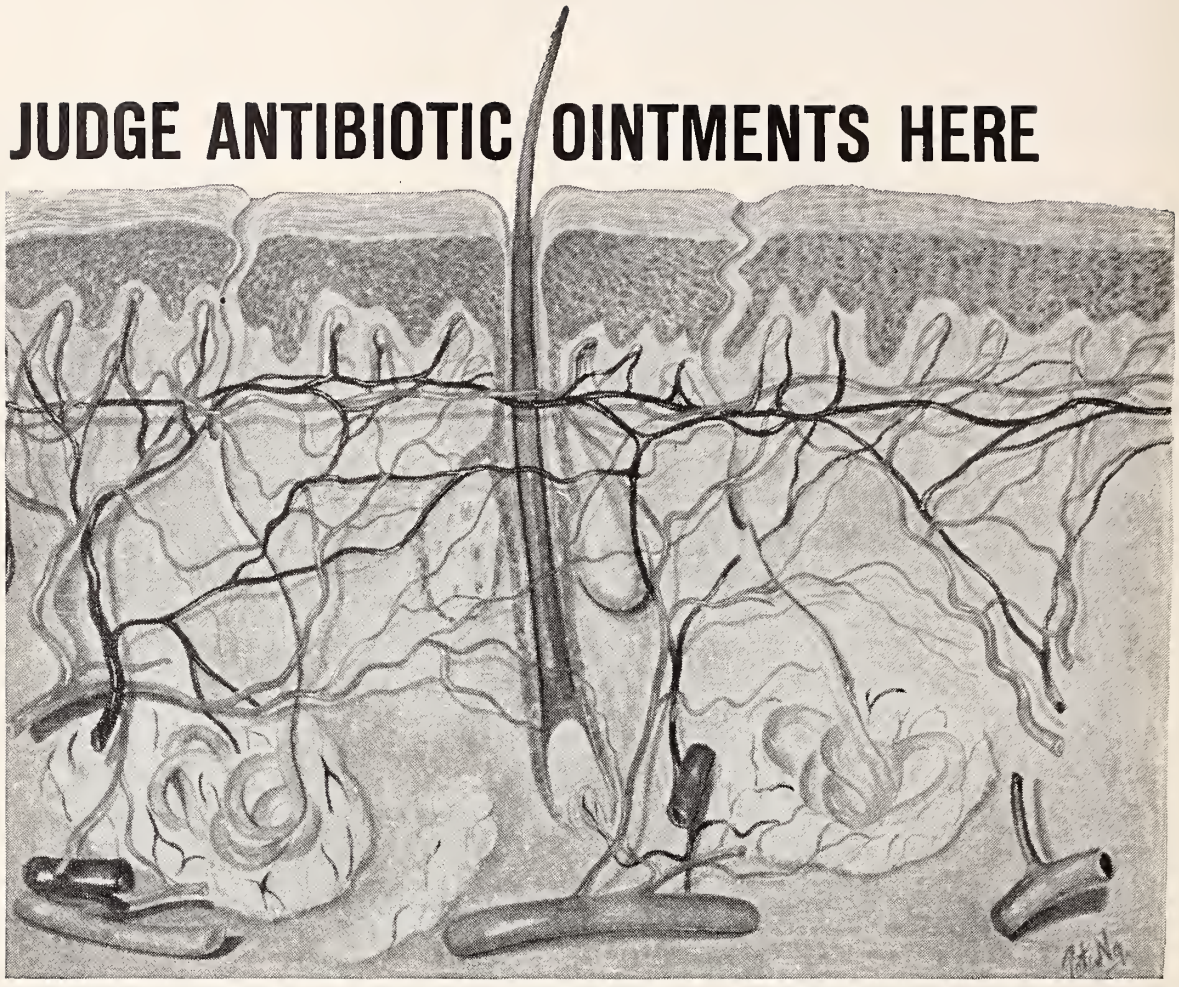
Any individual who administers a general anesthetic should be capable of passing an endotracheal tube or should have someone at hand who can do so.

In my opinion, adenotonsillectomy under general anesthesia is most safely accomplished if performed with an electively passed endotracheal tube safeguarding the airway.

Earl A Schultz, M.D.
Assistant Professor, U. of Minn.

Editor's Note: Editorial policy encourages honorable differences of opinion in the field of medicine. When an editorial is signed, it represents the opinion of the author.

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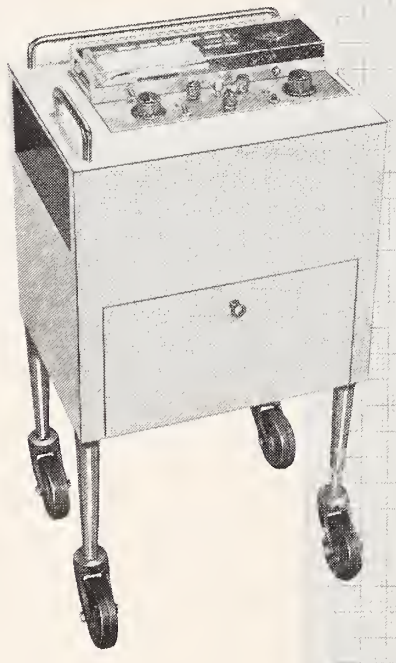
Minnesota Medicine Medical Writing Awards, 1963

It is the pleasure of the Board of Editors to publish the list of winners of the second annual Minnesota Medicine Medical Writing Awards chosen from articles published in MINNESOTA MEDICINE during the year of 1962.

First place plaques have been awarded to the authors of two articles: Drs. Erich S. Wisiol, Lyle A. French, Shelley N. Chou of the University of Minnesota for their article entitled "Carotid Endarterectomy" and Drs. John Simenstad, Charles F. Galway and Lloyd Mac Lean of Ancker Hospital, St. Paul for their article entitled "Tracheobronchial Lavage in the Treatment of Postoperative Atelectasis."

Certificates for excellence in medical writing were further awarded to the authors who are listed on the next page with the titles of their articles which were felt to be particularly outstanding by the Board of Editors.

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HONOR CERTIFICATE

Manuscript	*Author*	*Issue* 1962
Bacteremic Shock Due to Gram-Negative Enterobacilli.	Wm. Martin, M.D. Rochester, Minn.	October
Advances in Surgical Treatment of the Rheumatoid Hand.	R. L. Linscheid, M.D. P. R. Lipscomb, M.D. Rochester, Minn.	March
Purulent Pericarditis	Wm. D. Flory, M.D. Minneapolis	May
Renal Hypertension Surgery	D. A. Cooley, M.D. G. C. Morris, Jr., M.D. Houston, Texas	May
Office Bacteriology	A. E. Davis, Jr., M.D. Raleigh, N. C.	September
Verbal Auditory Screenings for Children	T. S. Griffing, M.D. K. M. Simonton, M.D. LeRoy D. Hedgecock, PhD Rochester, Minn.	January
Current Concepts Regarding Staphylococcal Disease	P. G. Quie, M.D. New York, N.Y.	July
Multiple Peripheral Embolism	F. M. Owens, Jr., M.D. St. Paul	May
Use of Immune Lymph in Treatment of Mouse Cancer	R. H. Balme, M.D. M. B. Dockerty, M.D. J. H. Grindlay, M.D. T. J. Litzow, M.D. Rochester, Minn.	September
Serological Testing for Syphilis in Minnesota in 1960	A. C. Kimball, PhD H. B. Bauer, PhD R. N. Barr, M.D. D. S. Fleming, M.D. Minneapolis	December
Paronychia	R. B. Benjamin, M.D. Minneapolis	January
The Meaning of Curative & Palliative Radiation Therapy	W. T. Murphy, M.D. Buffalo, N. Y.	February
Roentgenologic Appraisal of Solitary Pulmonary Nodulec	C. Allen Good, M.D. Rochester, Minn.	February
Colitis in Pregnancy	B. L. Maddix, M.D. Flint, Michigan	November

Minnesota Medicine is honored to have this opportunity to acknowledge the work of its distinguished authors and to express to them applause, thanks and cordial best wishes.

Stuart W. Arhelger, M.D.
Minneapolis, Minnesota

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REFER TO PDR

Poythress, White Section, Page 808 (1963 edition) and Product Identification Section

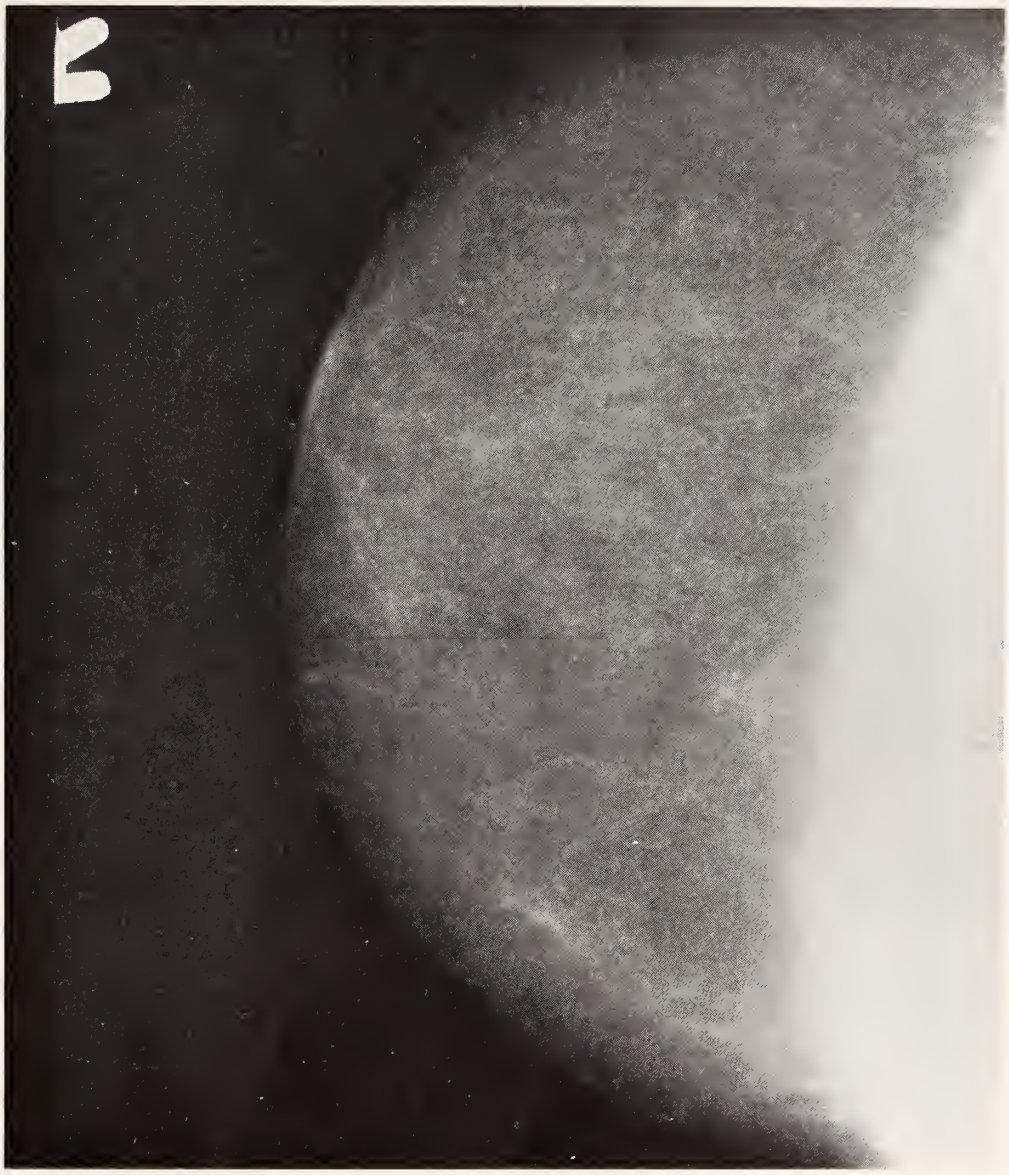
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Curbstone Consultation

Papanicolaou Smear

QUESTION: I sometimes hear patients speak of having had their Papanicolaou smear as if it were done every month or so. How often should a Papanicolaou smear be taken? *M.D., Duluth*

ANSWER: The Papanicolaou smear of the cervix is well established as a cancer detection method. It is the usual practice to perform this once a year. Since a significant number of positive results are obtained in women under the age of 30, the usual practice is to obtain an initial smear in women in their 20's, repeated every two years until age 30 and then yearly thereafter.

Orinase

QUESTION: A patient tells me that he showed sugar in the urine on one occasion. Since then he has been taking Orinase daily as a prophylactic against further development of sugar in the urine. He tells me that his blood sugar was never higher than 130. Should such a patient continue to take Orinase? Are there any side effects or ill effects from the continuous use of Orinase? *M.D., St. Paul*

ANSWER: From the information given it is not necessarily established that the patient has diabetes mellitus. Since the basic defect in diabetes is impaired metabolism of a carbohydrate load, this is best tested for by a glucose tolerance test. A simple screening test consists of the determination of a blood sugar two hours after a meal which is rich in carbohydrates.

If the patient does have diabetes, the basic therapy is a diabetic diet, the total number of calories being adjusted to achieve and maintain an ideal weight. In the adult-onset diabetic who does not respond to diet alone an oral hypoglycemic agent such as Orinase may be employed. This drug is generally well tolerated and free of long term side effects although a small number of patients will develop nausea, dermatitis, hypoglycemic episodes or evidence of hepatic injury. The concept that the use of Orinase may protect the latent diabetic from developing clinical diabetes, is under investigation, but the use of Orinase for this reason alone is not currently recommended for general use.



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Tumor Conference

Metastatic Carcinoma in Cervical Lymph Nodes Unknow Primary

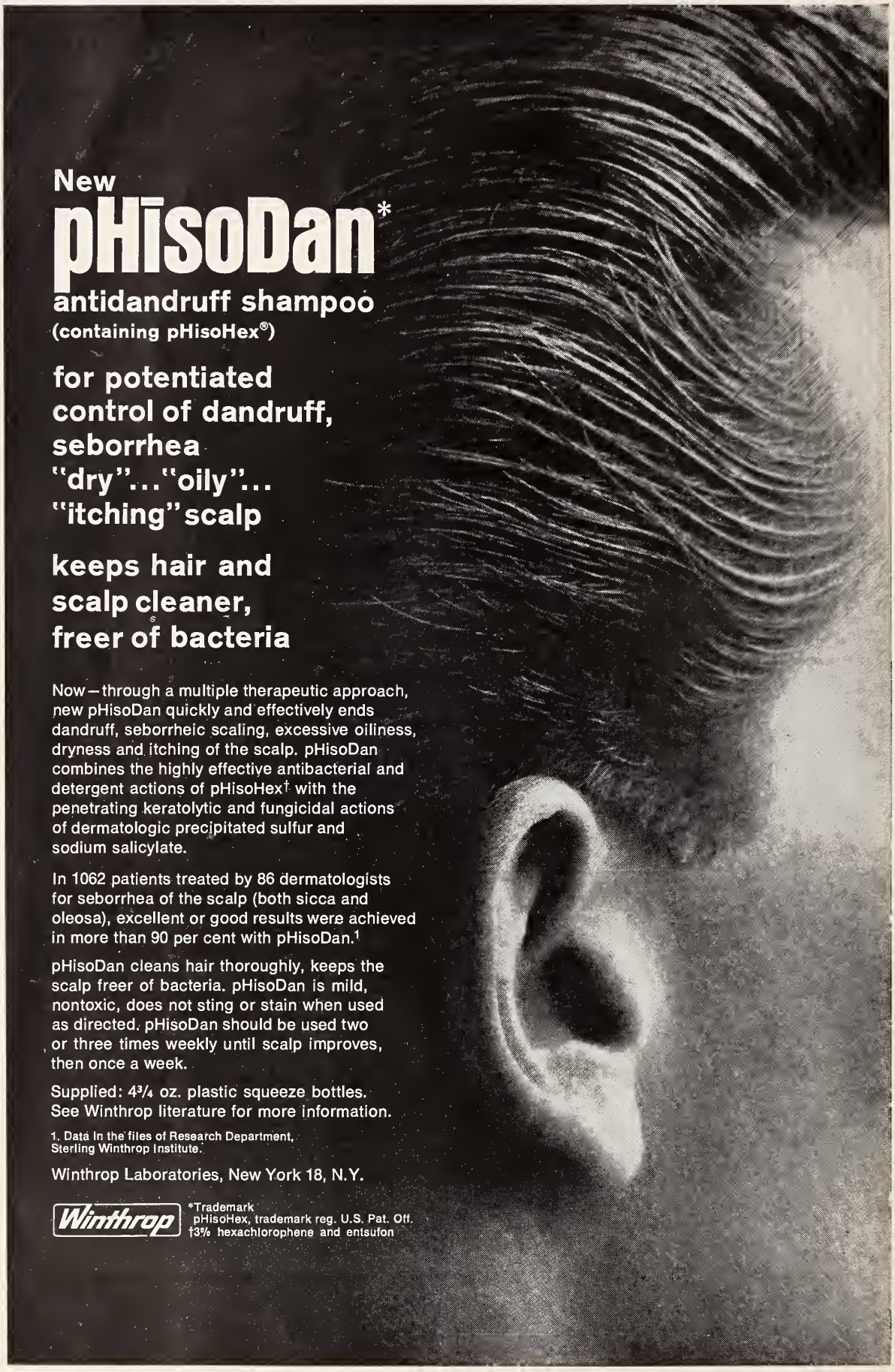
Surgical management of cancer of the head and neck aims to control the primary and, where possible, all areas of possible metastases with in-continuity removal of the regional lymph nodes. A second, and somewhat less desirable, attack is excision of the primary, such as antral carcinoma, followed by block resection of the neck nodes. On occasion the primary remains occult and enlarged lymph nodes are the only direct evidence of cancer. To delay resection of the regional nodes might allow spread beyond operable limits and jeopardize the chance for cure.[1] In these cases, a radical neck dissection, with or without subsequent irradiation, seems justified. The following case is of interest.

R. H., a 50 year old white female, was seen in the Tumor Clinic of the Minneapolis General Hospital in July, 1961. For the past three months she had noticed the presence of a mass in the right side of her neck which was increasing in size. This 4 x 4 cm. mass was interpreted clinically to be a large, deep upper cervical node. She was admitted to the hospital and intensively studied to ascertain the primary site of this probably metastatic tumor. This included a thorough ear, nose, throat, and laryngoscopic examination. All tests and examinations were completely negative. Under general anesthesia and, utilizing an incision that could be tailored to a radical neck dissection, the mass was excised. It proved to be an undifferentiated carcinoma in a cervical node.

She was then presented to the *Tumor Conference,* and discussion followed on the question of therapy for a metastatic tumor in a cervical node with an unknown primary. It was pointed that the most frequently involved nodes, metastatic from an unknown head and neck cancer, were those in the upper neck deep into the anterior border of the sternocleidomastoid muscle. Thyroid carcinoma more commonly spreads laterally and inferiorly to lower cervical nodes. It was recommended that she have biopsies of the right tonsil and of the nasopharynx, and repeat direct laryngoscopy to visualize the base of the tongue and pyriform sinuses; if these proved to be normal then to do a radical neck dissection. The biopsies and repeat laryngoscopy did not reveal a primary tumor, and subsequently a radical neck dissection was performed. She has been followed now for one-and-a-half years and, as yet, the primary has not been discovered.

This case is presented to emphasize several well known, but often forgotten principles, namely; that most cervical tumors in adults are cancerous,[2] that one-third of all patients with head and neck cancers present with an initial complaint of a "lump" in the neck,[4] and that biopsy of a cervical node for diagnosis should be used only as a last resort and never as the initial procedure in cases of cervical tumors.[3]

Continued



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for potentiated control of dandruff, seborrhea "dry"..."oily"... "itching" scalp

keeps hair and scalp cleaner, freer of bacteria

Now—through a multiple therapeutic approach, new pHisoDan quickly and effectively ends dandruff, seborrheic scaling, excessive oiliness, dryness and itching of the scalp. pHisoDan combines the highly effective antibacterial and detergent actions of pHisoHex† with the penetrating keratolytic and fungicidal actions of dermatologic precipitated sulfur and sodium salicylate.

In 1062 patients treated by 86 dermatologists for seborrhea of the scalp (both sicca and oleosa), excellent or good results were achieved in more than 90 per cent with pHisoDan.[1]

pHisoDan cleans hair thoroughly, keeps the scalp freer of bacteria. pHisoDan is mild, nontoxic, does not sting or stain when used as directed. pHisoDan should be used two or three times weekly until scalp improves, then once a week.

Supplied: 4¾ oz. plastic squeeze bottles. See Winthrop literature for more information.

1. Data in the files of Research Department, Sterling Winthrop Institute.

Winthrop Laboratories, New York 18, N.Y.

Winthrop

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The burden of greatest responsibility falls to the practicing physician who first sees these patients. A high index of suspicion is required on his part to discriminate between transient infectious nodes and those nodes which persist and may harbor tumor metastases. Improvement in the cure rate of head and neck cancers then depends not only on improvement in surgical technique (or Roentgen therapy techniques) but, perhaps, more on the increasing vigilance of the doctors in the front lines of practice.

Harrison H. Farley, M.D.
Minneapolis General Hospital

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1. Comess, M. S., Beahrs, O. H., and Dockerty, M. R.; *Cervical Metastases from Occult Carcinoma.* Surg Gyn and Obstet, 104:607, 1957.
2. Martin, H., and Morfit, H. M.; *Cervical Lymph Node Metastasis as the First Symptom of Cancer.* Surg, Gyn and Obstet, 78:133, 1944.
3. Martin, H., Ibid.
4. Kinsey, D. L., James, A. G., and Banta, J. A.; *A Study of Metastatic Carcinoma of the Neck.* Ann Surg, 147:366, 1958.

IT'S THE LAW

If the patient was not advised of the hazard of x-ray therapy and sustained a burn therefrom, the physician may be guilty of malpractice, no matter how skillfully the treatment may have been administered.

GOK

Dr. William Osler, having been invited to inspect a famous London hospital, was proudly shown about by several physicians and surgeons. Finally the charts were reached, and he looked them over carefully, observing the system of abbreviations: SF for Scarlet Fever, TB for tuberculosis, D for Diphtheria, and so on. All diseases seemed to be pretty well under control except one indicated by the symbol GOK.

"I observe," said the famous doctor, "that you have a sweeping epidemic of GOK on your hands. This is a symbol not in common use in American medical circles; just what is GOK?"

"Oh!" one of his hosts lightly replied, "when we can't diagnose, God Only Knows."

Don't put too fine a point to your wit for fear it should get blunted.—Cervantes

End

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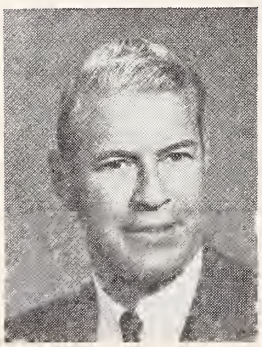
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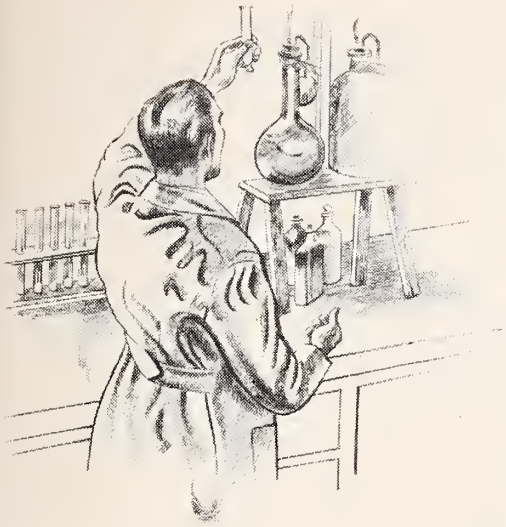


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Clinical Path Conference

Alcoholism, Jaundice and a Distended Gallbladder

A 74 year old white, single male was admitted for the first time to the Minneapolis General Hospital because of jaundice of two weeks' duration.

The patient was a known chronic alcoholic; he had been seen in the Emergency Room of the hospital one year earlier, noted to be intoxicated, and after brief examination was sent to the city jail. The patient admitted to excessive drinking during the last several months prior to the onset of his present illness. He had been relatively free of gastrointestinal disorders but admitted that he ate very little when he was drinking heavily. He did say that he had "trouble" after eating pork or cabbage. He had experienced exertional dyspnea of a mild degree during the past two years. He had noted swelling of the abdomen and peripheral ankle edema only during the two weeks prior to admission.

Past History

Review of the past medical history revealed that he had a herniorrhaphy performed at age 24, gonorrhea at age 26. The patient's mother had died of cancer of the stomach; his father had died of alcoholism. The patient had worked as a transient laborer during most of his life.

Physical Examination

On physical examination the patient appeared as an elderly, unkempt, markedly icteric male in no acute distress. The blood pressure was 110/75, pulse 75, temperature 99° F. The skin was markedly icteric; one or two small nevi were noted over the anterior chest. Save for the scleral icterus and dental caries, the examination of the head was unremarkable. On physical examination of the chest, the right diaphragm appeared more elevated than the left. Dullness and decreased vocal and tactile fremitus were noted over the right side of the chest posteriorly. A few scattered inspiratory and expiratory rhonchi were heard over both lung bases posteriorly. The heart did not appear to be enlarged; the tones were somewhat faint; no murmurs were audible. The abdomen was markedly distended with an easily demonstrable fluid wave. The liver edge was palpable approximately 10 cm. below the right costal margin and was thought by most observers to feel firm. A rounded mass was palpable in the right upper quadrant, closely associated with the liver edge; this appeared to project from the inferior surface of the liver. The spleen was not palpable. Pitting edema, grade 2+, extended to the thighs.

Continued

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You can expect rapid results from 'Soma' (carisoprodol)—because this unique drug breaks up both the spasm and pain of low-back syndrome at the same time.

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Carisoprodol seldom produces side effects. Occasional drowsiness may occur, usually at higher than recommended dosage. Individual reactions may occur rarely.

USUAL DOSAGE: ONE 350 MG. TABLET Q.I.D.

The muscle relaxant with an independent pain-relieving action

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carisoprodol

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Cranbury, New Jersey

Xray Findings

Chest X-rays taken at the time of admission revealed the heart to be of normal size with an ectatic and tortuous aorta. Both lung fields appeared to be normal. There were degenerative changes noted in the spine. A flat plate of the abdomen revealed a hazy appearance consistent with the presence of free fluid.

Laboratory

The laboratory data secured on admission and on the 4th and 11th hospital days are shown in Table I. The patient received 25 mg. of vitamin K-1 (as Konakion® intramuscularly on the first two hospital days.

Table I

	Hospital Days		
	I	4	II
Hbg gm/100ml	13.6		11.6
WBC mm³	13,200		20,200
PMN %	89		86
Lymph %	9		13
Prothrombin	26.5 sec.	19.2 sec.	19.9 sec.
Time	14.1 "	14.0 "	13.0 "
Blood sugar mg/100ml	84		
CO_2C.P. mEq/L	27.5	34	26
Chlorides, mEq/L	96	84.5	92
Sodium, mEq/L	139	139	136
Potassium, mEq/L	2.25	2.25	2.75
BUN, mg/100 ml	14	32	45
Ceph. Cholesterol	1+		
Thymol Turbidity	1 unit	3.1	
Albumin, gm/100 ml	2.5		
Globulin, gm/100 ml	3.0		
Alk. Phosphatase	56 units		40
SGOT	122 "		'39
Stool guaiac	neg.	neg.	
Cholesterol mg/100 ml	100		
Bilirubin—One minute	12.5	17.2	18.3
Total	27.3	32.8	42.0
Amylase	55 units	98	

Progress

Fever appeared on the 7th hospital day and at this time the patient was treated with antibiotics (tetracycline, streptomycin and penicillin). He received these agents during the remainder of his hospital stay.

An electrocardiogram on admission revealed normal sinus rhythm; the QT interval was prolonged (0.60) and this together with T-U fusion suggested hypokalemia. On the 6th day the patient developed atrial fibrillation. The patient received injections of thiomerin on repeated occasions. His initial weight, 203 lb., decreased to 175 lb. by the 14th hospital day. The peripheral edema largely disappeared but ascites was still demonstrable. As the latter diminished, the palpable right upper quadrant mass, interpreted by most observers to be a distended gallbladder, persisted.

The patient's clinical status slowly deteriorated despite the antibiotic therapy and the attention to his nutritional intake. He received glucose intravenously along with supplemental potassium and vitamins. As a test for neuromuscular coordination the patient was asked to sign his name each morning. The signature, legible until the 4th day, became a mere scrawl by the 7th day. By the 9th hospital day the patient had a flapping tremor of the outstretched hands.

Continued

Codeine at the White House Conference
Relative Safety Established

The just-published proceedings of the White House Conference on Narcotic and Drug Abuse include valuable information on the relative safety of codeine. An important contribution to this Conference was the "Report of an Ad Hoc Panel on Drug Abuse," drafted by eight prominent scientists and health officials. This report has been endorsed also by the Committee on Drug Addiction and Narcotics, National Research Council.

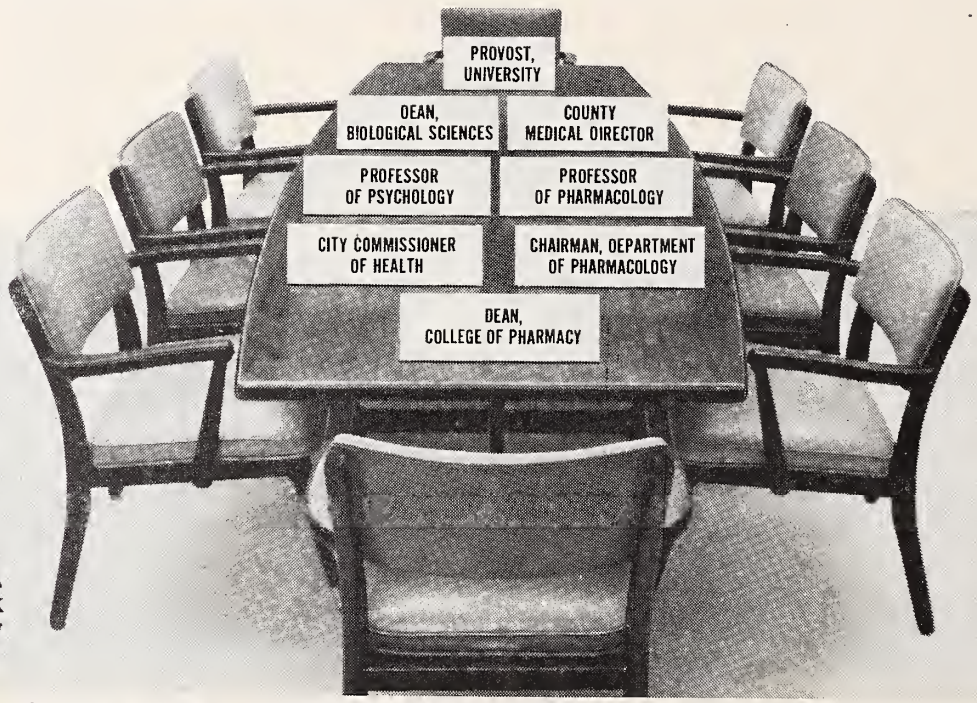
Among the points presented:

1. **Addiction to codeine is unusual***
2. **Substitution of codeine for another opiate to maintain addiction is rare**
3. **The very low abuse potential of codeine is recognized throughout the world**

This new report is an important addition to the vast body of clinical knowledge and literature on codeine. It is further evidence that the many codeine products available today may be prescribed and recommended with confidence.

Codeine has steadily maintained its status as a therapeutic agent of choice. It is still unique, being at once . . . relatively safe . . . orally and parenterally effective . . . versatile and widely compatible.

*Note also this statement by the former U.S. Commissioner of Narcotics, Hon. Harry J. Anslinger, given to the California Senate Judiciary Committee, March 27, 1963: "In my experience of 30 years, I have seen only one codeine addict."



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On the 9th hospital day 100 cc. of peritoneal fluid was removed for study. The ascitic fluid contained 1.2 gm. of protein/100 ml.; no tumor cells were found in the sediment.

By the 14th hospital day it was evident that the patient was losing ground despite the various therapeutic endeavors. He was taken to the operating room and an exploratory laparotomy was performed under local anesthesia.

Differential Diagnosis

Dr. F. W. Hoffbauer:* I had the opportunity to see and examine this patient while he was on the Medical Service. There can be no doubt concerning the severity of his alcoholism. This had obviously been a longstanding problem; he had been arrested for drunkeness. The physical findings in this patient, namely deep jaundice, enlarged liver and ascites, are certainly encountered very frequently in patients with fatty cirrhosis due to alcoholism. If we now look at the laboratory work-up in this case (Table I), we find much that is in support of the diagnosis of Laennec's or portal cirrhosis of the fatty type. We do encounter leukocytosis and hypoprothrombinemia in the alcoholic patient with cirrhosis and ascites. Depression of the serum sodium and a marked lowering of the serum potassium is also a fairly routine finding. I shall return to these tests as well as to the alkaline phosphate in a moment. A decreased value for the serum albumin and cholesterol is not at all unusual in a patient with fatty cirrhosis, especially where it is severe enough to produce jaundice of this magnitude. A serum bilirubin of 27.3 mg./100 ml. is certainly in the range of deep icterus. Most patients with fever, leukocytosis or jaundice due to alcoholic fatty liver disease do not exhibit marked elevations of the transaminase; hence the transaminase value of 122 units, as in this patient, would be quite consistent with such a diagnosis. The prothrombin time decreased, not to normal but at least to some lower figure, when vitamin K was given. This "partial" prothrombin response is encountered in alcoholic fatty liver disease. Mild hypoprothrombinemia persists in spite of repeated injections of vitamin K.

There are a few items, however, that are inconsistent. The alkaline phosphatase of 56 King Armstrong units is quite elevated and although we are accustomed to seeing values as high as 40 to 50 in alcoholic fatty liver disease, 56 is a bit high. Another feature of the laboratory examinations that is somewhat out of line is the cephalin-cholesterol flocculation (1+) and the thymol turbidity (1 unit). Patients with active Laennec's cirrhosis usually have positive cephalin cholesterol flocculation tests and elevated thymol turbidity tests. There is one other feature of this case that is distinctly against the diagnosis of fatty cirrhosis as the sole explanation for jaundice. That is the palpable mass in the right upper quadrant. Having felt this mass myself, I would say without much hesitancy that this was indeed a palpable and therefore a distended gallbladder. It was smooth, round and tense. It did not feel like a carcinoma of the gallbladder nor did it feel like a large stone impacted in the fundus of the gallbladder. Since the mass was not tender, one might argue that this was a coincidental hydrops of the gallbladder in an individual with Laennec's cirrhosis. This is a possibility. I am sure that gallstone disease can occur in patients with Laennec's cirrhosis. The combination of hydrops in the gallbladder in a deeply jaundiced alcoholic male whose basic problem was — and the cause of whose jaundice was — fatty cirrhosis, would be quite unusual. I am therefore forced to conclude that this man became deeply jaundiced because of an extrahepatic biliary obstruction. The presence of a distended palpable gallbladder in a deeply jaundiced individual brings us to a discussion of Courvoisier's Law.

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*Professor of Medicine, Chief, Internal Medicine Service, Minneapolis General Hospital

(TO BE CONTINUED NEXT MONTH)



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Abstracts, Briefs and Commentaries

STOMAL OBSTRUCTION

Of 1,000 patients treated by surgical management of complicated duodenal ulcer at the Vanderbilt University School of Medicine, 500 patients had an end to end gastro-duodenostomy or Billroth I reconstruction. Of the complications related to the stomach, obstruction at the anastomotic site was the most frequent, comprising 5 percent of the 500 patients. The largest number of these complications resulted from technical errors in performance of the anastomosis.

The most common cause of obstruction at the stoma resulted from inverting too much tissue in performance of the anastomosis. The author recommends a 2 to 2.5 cm. stoma and suggests that this problem is best prevented by incorporating only small bits of tissue with the inner layer catgut suture. The sutures must be placed close together for hemostatic purposes but need not involve large bites of tissue. He also suggests that the use of large caliber sutures should be avoided and that the external sero-muscular layer of silk must also incorporate as little tissue as possible.

Aside from improper technical performance of the anastomosis error in judgment constitutes the next largest group in the obstruction problem. If the ulcer is large, with a deep crater penetrating into the pancreas, the Billroth I reconstruction should not be employed.

Post operative fibrous adhesions between stomal site and adjacent organ may also produce mechanical obstruction, and the author has observed the problem in patients who had a concomitant cholecystectomy, with the stomal site adherent to the gallbladder fossa, resulting in kinking and angulation.

Re-exploration is the surest and safest method to insure gastric emptying. This is best done by performance of a dependent gastro-enterostomy. The adherence of stoma site to gallbladder fascia is now being prevented by the insertion of intervening omentum between fascia and duodenal head. Excessive mobilization of the second duodenum is thought to predispose to angulation or adhesion formation.

Miscellaneous causes of obstruction are gastro-duodenal suture line leakage, acute pancreatitis, post-operative and sub-hepatic abscess. These are usually temporary and are treated by prolongation of gastro-duodenal suction and/or draining of abscess when necessary.

Postoperative obstruction at the Billroth I anastomotic site occurs with distressing frequency. Perhaps there is a tendency to employ only the open end of duodenum when it is not sufficiently pliable. Dr. Herrington suggests that the use of an anterior slit such as is done in ureteral anastomosis and meticulous attention to detail of doing a technically precise anastomosis will avoid the problem of a partially obstructed stoma.

J. H. Strickler, M.D.
Minneapolis, Minn.

Herrington, J. L., "Consideration of The Factors Responsible for Internal Obstruction following a Billroth I Anastomasis" Ann Surg 157:83, Jan 63

THIAMINE A PREVENTATIVE OF HYPOKALEMIC PERIODIC PARALYSIS

Thirteen Japanese patients with the clinical features of the hypokalemic form of periodic paralysis were treated with oral or intra-muscular injections of thiamine salts with a marked reduction in frequency or cessation of paralytic attacks. The authors suggest that these patients are chronically thiamine deficient, and have an abnormality of carbohydrate metabolism at the point of pyruvic acid oxidation to acetyl Co. A.

It is becoming increasingly clear that there are several forms of periodic paralysis, and that specific characterization of the disorder should precede treatment. Kinships with periodic paralysis may have low serum potassium levels during an attack (as did the persons in this report), normal or elevated levels. The treatment suggested in this report for the hypokalemic form is promising. Similar studies in patients with this disorder in other geographical areas might help to establish that the defects which these authors describe are characteristic of the disease and not due to deficient diet.

Peter J. Dyck, M. D.
Rochester, Minnesota

Eijiro Satoyoshi, Yashuhisa Suzuki, and Tatsuo Abe — "Periodic Paralysis," Neurology, 13:24-33, January 1963.

Continued

URINARY INFECTIONS IN CHILDHOOD

A review of 1,279 cases of recurrent urinary tract infection in infants and children revealed that 1,076 had no underlying mechanical obstruction. In the non-obstructive group, females were more prevalent than males (834:242). The sex ratio was reversed in the obstructive group. Delay in diagnosis, especially in early life, was due largely to the meager symptoms referable to the urinary tract. Specific therapy with therapeutic levels of antimicrobial agents for sufficient periods to sterilize the urine (5 to 9 days) was followed by prolonged therapy with an antimicrobial agent, such as a sulfa drug, in suppressive levels (4.5 mg/kg/day). Therapy was continued 6 months or longer after urine cultures were negative. After therapy was discontinued 90% of the patients remained symptom-free with negative cultures.

Courtesy of References and Reviews
Journal of the American Medical Association

DeLuca, F. G., Fisher, J. H., and Swenson, O. New Engl J Med 268:75 Jan 10 1963

G. I. SIGNS IN G. U. DISEASE

All patients with obscure or undiagnosed gastrointestinal symptoms should be subjected to careful genitourinary study, since an estimated 30 to 40 per cent of the latter patients have abdominal symptoms. The most common of these manifestations, which may be due to almost any disease of the tract between the kidney and prostate gland, are abdominal pain, nausea and vomiting, distention and ileus, abdominal mass, and constipation. The author presents 7 abbreviated case histories illustrative of this transfer of symptoms, usually explained by the close inter-relationship of the nerves supplying the 2 systems. Both get their nerve supply from the autonomic system, with the celiac ganglion and plexus acting as integration point. Also, urinary tract organs may transmit stimuli via the somatic nerve fibers in the parietal peritoneum, which is closely associated with these organs.

The 7 patients whose summarized histories are presented ranged in age from five to sixty-three years. Two were female: a five year old girl admitted with a tentative diagnosis of acute appendicitis who was found to have an impacted stone in the ureter, and a woman of fifty subjected to an appendectomy who was later found to have a duplicated renal pelvis with a large hydronephrosis of the lower half. The males ranged in age from nine to sixty-three years. They had a variety of urogenital disorders including prostatism, ureteral obstruction, and tumor of the kidney, all presenting acute abdominal symptoms.

An excretory urogram is the most useful diagnostic study in genitourinary disease. Barring shock or marked azotemia, it can be used in acute cases preoperatively. Often the patient is already dehydrated, and precleansing of the colon is not always necessary. The ex cretory urogram will give important information on kidney function, reveal suspicious shadows, filling defects, and obstruction. Also, a careful history should be taken in patients with obscure gastrointestinal symptoms, as well as indicated laboratory and roentgenographic studies and physical examination. One of the cases, that of the five year old girl may be briefly recounted to illustrate the authors point. This child had had a history of 6 episodes of acute periumbilic and perigastric pain over a period of several months. Accompanied by nausea and vomiting, the spells would last one or two days. The pain did not radiate and there were no bladder symptoms. She was referred with a tentative diagnosis of acute appendicitis. Pulse, temperature, and respiration were normal on admission. There was tenderness in the right lower quadrant. Urinalysis revealed 5-6 white cells per high powered field. The white blood count was normal. Because of the white cells in the urine an excretory urogram was done, showing a stone about a cm. in diameter impacted in the distal portion of the right ureter with a hydronephrosis and a hydro-ureter above it. Following ureterolithotomy the patient became asymptomatic.

Courtesy of Medical Abstract Service
Berwyn, Illinois

Buchert, W. J. Penn Med J 65:789-794 July 1962

CARCINOMA OF BLADDER

Statistics on bladder tumors are meaningless unless the tumors are classified according to the depth of penetration and grade of malignancy. The 4-stage classification of the depth of penetration as outlined by Jewett was followed in this review of 157 consecutive cases of primary carcinoma of the bladder followed for 5 years after diagnosis and treatment. All patients were male veterans; the majority (65%) were in the age group 60 to 70. The main presenting symptom was hematuria. The grade of malignancy was determined from the pathological examination, Grade 1 being the lowest and Grade 4 the highest of malignancy. The method of choice for treating lesions of low-grade malignancy is by transurethral resection as evidenced by an 85% survival for 5 years or longer. Results obtained in lesions of high-grade malignancy were uniformly poor, regardless of the procedure employed. It is noteworthy also that evidence of hydonephrosis secondary to ureteral obstruction carries with it in the vast majority of cases a survival time of less than a year.

Courtesy of References and Reviews
Journal of the American Medical Association

Manson, S., and Samellas, W.
J Urol 88:402 Sept. 1962

DIVERTICULUM OF URINARY BLADDER

The authors review observations on 115 patients with diverticula of the urinary bladder who required surgical treatment. The diverticula were secondary to lower urinary tract obstruction. Treatment therefore necessitated both the removal of the diverticulum and relief of the bladder neck obstruction. Transvesical prostatectomy was performed in 41 patients, wedge excision of the neck of the bladder in 33, retropubic prostatectomy in 24, posterior prostatotomy in 10, and perurethral resection of the prostate in 4. Techniques not involving the removal of the diverticulum were performed in 2 of the remaining 3 patients. The 3 deaths (2.6%) occurring during the postoperative period were all due to cardiovascular causes. The long-term follow-up revealed that whatever method was used, it produced lasting success, provided the entire diverticulum was removed. Adequate relief of the obstruction of the vesical neck also was essential for a good final result. Satisfactory results were obtained in all patients in whom the prostate could be enucleated either retropubically or transvesically. Good results were obtained also in the 4 patients with stenosis of the vesical neck, who were treated by perurethral resection.

Courtesy of References and Reviews
Journal of the American Medical Association

Fox, M., Power, R., and Bruce, A.
Brit J Urol 34:286 Sept 1962

Continued

EMBOLISM AND SILENT INFARCTS

A 33-year-old farmer was admitted to hospital because of pain and bluish discoloration, which had lasted nine hours, of the third, fourth and fifth fingers of the right hand. Thirty hours before admission he had had a sudden pain in the right shoulder, which gradually extended to the hand.

On the morning of his admission his right hand was cyanosed with paresthesia. The distal phalanges of the third, fourth and fifth fingers were cool and cyanotic and became pale on elevation. The radial and ulnar pulses were normal.

Allen's test (in this case delayed filling of the capillaries with occlusion of the radial artery at the wrist) was positive. An ECG showed changes consistent with an acute diaphragmatic myocardial infarction.

There had been no previous symptoms suggestive of cardiac or vascular disease. On the morning of his admission repeated questioning by four different physicians failed to elicit any history suggesting myocardial infarction or angina pectoris.

Measures to induce vasodilatation, with rest in bed and anticoagulant drugs, led to an uneventful recovery. Since the patient's discharge from the hospital long-term anticoagulant therapy with warfarin sodium has been maintained.

This case demonstrates that myocardial infarction occur in an otherwise healthy young man and also that embolic arterial occlusion can be the only symptomatic manifestation of such infarction. Three other cases in which embolic arterial occlusion was associated with silent myocardial infarction are reported.

Heed to this point may spare the patient an unusually high operative risk and make it possible to plan a more adequate therapeutic program. Long-term anticoagulant therapy, unless specifically contraindicated, is mandatory in cases of embolic arterial occlusion complicating myocardial infarction.

Courtesy of World Wide Abstracts
Excerpta Medica Foundation

Harrison, C. E. "Sudden Arterial Occlusion as a Clue to Silent Infraction, with Report of a Case, Proceedings of the Staff Meetings of the Mayo Clinic 37/ 11-293-300

PURULENT PERICARDITIS

When pus forms in the pericardial sac it does so always as a complication of some severe infection elsewhere, produced by pyogenic organisms. While acute fibrinous pericarditis is usually managed by the internist, the occurrence of purulent pericarditis requires surgical drainage. This is often a life-saving measure. A patient with acute purulent pericarditis treated by surgical drainage is reported. This procedure augmented medical management of the infectious process and resulted in clinical cure. The entity of pericarditis, including incidence, modes of production, anatomic relationships and types of surgical therapy, is discussed.

Courtesy of References and Reviews
Journal of the American Medical Association

Munnell, E. R., and Hammerstein, J. F. Amer Rev Resp Dis 86:917 Dec 1962

RHEUMATIC FEVER

The types of complaint that had brought 264 children and adolescents with first attacks of acute rheumatic fever to medical attention were correlated with the time interval between first symptom and beginning of treatment and with the incidence of cardiac involvement, rigorously and objectively appraised, before and after treatment. Residual heart damage occurred in 25% (53 of 209) of patients who began treatment within 2 weeks after onset of symptoms and in 69% (38 of 55) of those whose treatment began after 2 weeks. However, further examination of these data showed the following pertinent features. (1) Residual heart disease, which was unrelated to time or type of treatment, was present in 30 patients admitted with severe carditis and was absent in 151 patients who had no carditis on admission. In the 83 patients with mild carditis, residual heart disease occurred somewhat less frequently in those treated early than in those treated late, but the difference was not statistically significant. (2) Of 202 patients who presented with overt arthritis, only 3% had severe carditis, while 61% had no carditis; of 62 patients without arthritis, 39% had severe carditis and only 13% had no carditis. (3) Arthritis occurred as a presenting complaint in 89% of patients treated within 2 weeks but only in 42% of those treated after 2 weeks. These data fail to confirm the traditional belief that early treatment of acute rheumatic fever reduces the incidence of residual heart disease.

Courtesy of References & Reviews
The Journal of the American Medical Association

Feinstein, A. R., Zagala, J. G., and Spagnuola, M. Ann Intern Med 57:563 Oct. 1962

PERICARDITIS THERAPY

The writers discuss briefly the place of steroids in the treatment of pericarditis and suggest a dosage schedule for prednisone.

Steroids should be reserved for those patients with pericarditis who do not respond to salicylates and those who are severely ill. They should not be used if tuberculous pericarditis is suspected. Steroids have been of particular value for relieving pain, and they may lessen the dyspnea due to splinting of the chest, without impairing ventilation. The antipyretic effect of the steroids is of secondary importance except in rare cases. The response to steroids may be dramatic within 24 hours in the critically ill child with acute rheumatic or other type of pericarditis; improvement may consist of subsidence of tachypnea, slowing of the pulse rate, disappearance of an anxious expression, improvement of appetite, and restoration of sense of well-being. It is the impression that the suppression of inflammation with lessened formation of pericardial fluid may decrease likelihood of pericardial tamponade. The elevated venous pressure often decreases within several days.

There is no evidence at this time that steroid treatment will shorten a given attack of pericarditis. Premature withdrawal often results in the rebound phenomenon with return of pain and fever.

Daily doses of 40 to 60 mg. of prednisone are usually effective and should be gradually reduced by trial and error over a period of 2 to 3 weeks. Dosage should be increased again if symptoms return when dosage is decreased. Administering gradually increased dosage of aspirin during the period of withdrawal may lessen the likelihood of rebound and shorten the course of prednisone therapy.

Courtesy of Farley Manning Associates
New York, New York

Logue, B. Tutunji, F. Amer Heart J 64:570-57; October 1962

Continued

COLCHICINE IN ARTHRITIS

While much reliance has been placed on the colchicine therapeutic test as a tool for differentiation of gout from other rheumatic arthritides, the results in this study indicate that the diagnostic significance of a positive response to the test is open to question. Of 30 rheumatoid arthritis patients given the test with orally administered colchicine, 10 showed subjective improvement; furthermore, 4 of the 10 showed good objective improvement. Administration of the drug intravenously resulted in satisfactory improvement in 7 of 14 rheumatoid patients. It was notable that most of the patients who responded satisfactorily to the test within 24 hours had not maintained their improvement when examined 1 week later.

In the author's opinion, approximately 50% of the beneficial results observed here could probably be attributed to a placebo effect. This possible placebo effect from the colchicine deserves serious consideration in the interpretation of responses to the drug. Three of 8 rheumatoid patients responded to placebo tablets resembling colchicine; 2 of the 3 had a satisfactory response during the actual colchicine trial. An intravenously administered placebo gave the same degree of beneficial improvement as had injections of the active drug in 2 of 4 patients. No characteristic response to the placebo as compared to the colchicine could be delineated in any of these patients, and it was thus impossible to differentiate the one response from the other. These observations demonstrate not only a potential pitfall in the interpretation of responses to colchicine, but also the very great difficulty that investigators in the field of rheumatic disease encounter in evaluating the efficacy of drugs used in therapeutic trials.

Courtesy of Farley Manning Associates
New York, New York

Zuckner, J. New Engl J Med 267:682-686 October 1962

TRIPARANOL THERAPY

The triad of ichthyosis, loss of hair, and change in color of hair is reported as a configuration of findings that may follow the administration of triparanol. The fact that such changes occur even when the usual recommended dose of the drug is taken, the peculiar predilection for males, with an incomplete development of findings in female patients, and the apparent involvement of even the very young are emphasized. The possible development of cataracts in patients with changes in the skin and hair is to be remembered. Thus the condition of patients receiving triparanol should be evaluated by slit-lamp examination at intervals during such therapy.

Courtesy of References and Reviews
Journal of the American Medical Association

Perry, H. O., Winkelmann, R. K., Achor, R. W. P., and Kirby, T. J., Jr., Amer J Med Sci 244:556 Nov. 1962

STEROIDS FOR ASTHMA

Continuous long-term corticoid therapy given for periods ranging from 1 to 9½ years and in small maintenance dosage proved invaluable adjuncts to the usual allergy and drug treatment in 25 private intractable asthmatics. Nine of the 25 were "asthmatic cripples" who were able to resume their normal duties, even during stressful situations. Since 1958, all received the newer corticoids, mostly triamcinolone. Side effects were minimal, never serious, and not a major problem in any patient.

Courtesy of References and Reviews
Journal of the American Medical Association

Tuft, L. Amer J Med Sci 244:686 Dec 1962

STEROIDS AND SURGERY

The occasional disasters after surgery in patients undergoing treatment with cortisone or related steroids can be avoided. In a series of 78 cases the authors demonstrated that the most important factor in the favorable outcome of operations in steroid-treated patients is that they are identified as "steroid" cases before operation. The authors consider it vital that the anesthesiologist be informed about this. Concerning steroid coverage during operation they have divided their patients into 2 groups in recent years. The decisive factor in this classification is the length of the interval since the last steroid medication. Patients who had received corticoids during the last 4 weeks were given additional hormones according to a standard schedule. All other patients were operated on without steroid cover, but they were watched very carefully. This system has worked satisfactorily, and there have been no deaths. None of the patients of the first group who received large doses of steroids showed signs of delayed healing or of wound infection.

Courtesy of References and Reviews
The Journal of the American Medical Association

Solem, J. and Lund, I. T Norske Laegeforen 82:1160 Sept. 1 1962.

COLITIS THERAPY

Treatment of nonspecific ulcerative colitis is not yet entirely satisfactory, although it has improved greatly since the introduction of antibiotics, chemotherapeutic agents, steroids, and better surgical techniques. The author discusses the disease in regard to pathology, diagnosis, complications and treatment.

The greatest usefulness of steroids in ulcerative colitis is in the acute exacerbation and to some extent in the toxic aganglionic complication. The improvement produced in ulcerative colitis by steroids is probably related to their anti-inflammatory property but may also be associated with control of the hypersensitivity state. Because of the simplicity of their administration, oral steroids are more useful in general treatment than is ACTH, which most authors believe has some slight advantage. Kirsner et al. treated 240 patients with corticotropin and/or oral steroids; the results were good in 115, favorable in 80, and minimal in 45; 7 of the 23 deaths in this series were due to complications associated with steroid therapy. Wirts and Rehfuss used corticotropin and followed patients for 1 to 2 years; results were excellent in 43%, good in 35%, fair in 16%, and failure in 6%. Truelove found hydrocortisone hemisuccinate sodium (Solu-Cortef) or prednisolone 21-phosphate (Hydeltrasol) to be the drug of choice to administer by rectal drip to treat patients with diffuse colonic involvement; rapid clinical remission occurred in 75% of those treated by rectal drip, compared to 33% of those treated with oral prednisolone. Schwartz et al. obtained similar results with rectal administration in mild cases; the response was about 50% within 48 hours. No systemic effect was observed with the rectal use of steroids. The relapse rate is high with the rectal use of steroids, and many authors believe that the results are not as good as Truelove's figures suggest.

The author reviews several reports of complications of corticosteroid therapy. Kirsner et al. indicated that, in general, steroid therapy does not increase the incidence of perforation, ulceration, or hemorrhage.

Courtesy of Farley Manning Associates
New York, New York

Jourdonais, L. Postgrad Med 32:360-396 October 1962

Continued

REACTIONS TO ORAL ANTIBACTERIALS

Allergic reactions to oral antibacterials were studied over a 9-year period in 3,300 consecutive allergic private patients. Penicillin and sulfamethoxpyridazine were responsible for serious reactions and their use by mouth was discontinued. The 9 oral preparations studied fell into the following order with regard to increasing frequency of sensitization: triacetyloleandomycin, tetracycline, sulfamethoxazole, sulfamoxole, sulfadimethoxine, demethylchlortetracycline, erythromycin, chloramphenicol, and novobiocin. The major problem in the use of these antibacterial preparations was drug allergy. Selection of an antibacterial drug that will cause the fewest possible sensitizations and serious allergic reactions when given by mouth is important in treating any allergic person.

Courtesy of References and Reviews
Journal of the American Medical Association

Grater, W. C. Ann Allergy 20:480 July 1962

NEOMYCIN

The finding that ammonia formation in the intestine can be reduced and hepatic coma thereby often reversed or prevented by oral neomycin has been followed by observations on nutritional and metabolic effects of this antibiotic. These aspects of neomycin administration merit consideration in the therapy of cirrhosis and in the use of this drug for intestinal flora reduction preoperatively.

The diarrhea commonly seen in patients taking neomycin reflects a malabsorptive state similar in some respects to that seen in nontropical sprue. Fecal excretions of fat, nitrogen, sodium, and potassium are increased to varying but significant degrees. Absorption of carotene, vitamin B_{12}, D-xylose, glucose, iron, and I^{131}-labelled trioleate is reduced, and serum cholesterol levels are lowered. Intestinal biopsies have shown changes of the jejunal mucosa that are reminiscent of early sprue syndromes; reversal of these changes occurs when neomycin is stopped. Malabsorptive effects of neomycin have been demonstrated with 12 Gm/day and have also been found with more commonly used dosages of 4 to 6 Gm/day, with which the effect on fecal fat may be less marked, but there is clear-cut reduction in absorption of carotene and D-xylose. A reduction in serum cholesterol has been reported with 0.5 Gm/day.

Possible mechanisms responsible for neomycin-induced malabsorption were discussed, e.g., some type of physical or chemical blockade produced by the irritative effect of neomycin or alteration in bile acid metabolism that may impede absorption of not only fat but also other materials. Lowering of serum cholesterol may result from increased conversion of cholesterol to bile acids; if so, decrease in serum cholesterol may occur independent of any malabsorptive effect of neomycin.

In cases of severe liver disease, nutrition becomes paramount. A patient taking neomycin may suffer added insult to his precarious metabolic state unless he is eating well and is observed carefully. Excessive loss of potassium in the feces may result in potassium depletion and possible increase in blood ammonia levels. Close attention should be paid to potassium intake and serum potassium changes in neomycin-treated patients, especially those with severe liver disease or those who are about to undergo or have recently undergone surgery. Neomycin is valuable in patients with hepatic coma or episodic stupor, in whom it will permit ingestion of moderate amounts of protein. Its beneficial effect preceding intestinal surgery remains undiminished. The potential hazard of renal toxicity if neomycin is absorbed in significant amounts, the occasional occurrence of neomycin-resistant staphylococci, and the nutritional effects of neomycin must be kept in mind. Neomycin may lead us to new information concerning physiology of intestinal absorption and control of serum cholesterol.

Courtesy of Abstracts
Farley Manning Associates
New York, New York

Faloon, W.
New York J. Med. 62:2547, Aug. 1, 1962

NEOMYCIN AND STAPH

A simple method for rapidly terminating the staphylococcal nasal carrier state is described, consisting of spraying approximately 1 mg. of neomycin into the nose once a day. A solution containing 5 mg. of neomycin sulphate per ml. of normal saline is sprayed into the nose with a Holmspray atomizer No. 600. Five squeezes of the bulb are made for each nostril—3 for the nares and 2 for the deeper cavities. This method gave good results in a trial on 28 nurses and nursing assistants, in many of whom control observations were made by prolonged bacteriologic observation (7 instances) or the use of plain normal-saline sprays for a week or longer (12 cases).

The 28 subjects chosen for this study were nasal carriers of coagulase-positive Staph. aureus, from all of whom 3 successive positive nasal swab cultures had been taken several days apart. Then daily cultures were taken, followed by neomycin nasal spray. Treatment was discontinued after 2 negative cultures, and the nasal culture was repeated in 1 to 3 weeks. If the culture turned positive again and remained positive for 3 successive cultures, treatment with neomycin spray was repeated. Any patients requiring a third course were considered permanent carriers and were continued on neomycin spray 2 times a week.

The nasal culture became negative after the first spray in 32 of the 44 courses of treatment, after the second spray in 7 instances, and after the third spray in 4. The only failure was in a case in which the nasal culture remained positive after the fifth spray. Of the 28 nasal carriers, there was 1 failure, 17 remained negative after the first course of treatment, and 10 showed positive nose culture when checked at 1 to 3 weeks. All of these 10 became negative after the second course of treatment, and 4 remained negative. The 6 patients who required a third course were then given neomycin spray 2 times a week; a negative culture was maintained throughout the observation period of 6 weeks.

There may be another indication for eliminating pathogenic staphylococci from the nose, in view of recent reports that patients who are nasal carriers of staphylococci have significantly more postsurgical sepsis and other complications than do noncarriers.

Courtesy of Farley Manning Associates
New York, New York

Hussar, Allen E. Clin Pharmacol Ther 3:441-446 July-August 1962

Continued

ORAL CYTOLOGY FOR CANCER

In 1959 a cooperative study was initiated by the Dental Services of twelve Veterans Administration Hospitals to determine whether cytological screening of minor oral lesions might disclose the early and "in-situ" carcinoma.

The procedure involved scraping of all oral lesions for cytological screen whether or not cancer was suspected. Tissue specimens were taken whenever clinically indicated or when cytology findings were suggestive. Mouth examinations in 58,497 patients disclosed one or more oral lesions in 1,621. In this group 208 of the lesions were cancer and 51 of these were clinically unsuspected.

The clinical appearance was shown to be an unreliable basis for the diagnosis of mouth cancer, since 21% were completely asymptomatic and 25% of the primary lesions resembled benign and innocuous abnormalities.

Thus, cytological screening of asymptomatic and innocuous appearing mouth lesions is an additional, simple, and reliable diagnostic tool that can detect early mouth cancer at a time when the prognosis is best.

One is tempted to consider this approach primarily a dental technic, but, in fact, the observant clinician may well adapt it to the routine office physical exam just as he has come to routinely perform the cervical "Pap" smear. The results of management of advanced oral cancer certainly are such as to make welcome any means of earlier identification of these lesions.

Robert N. Hammerstrom, M.D.
Minneapolis, Minnesota

Sandler, H. C. "Cytological Screening for Early Mouth Cancer" Cancer 15:1119 Nov-Dec. 1962.

CANCER OF THE TONGUE

The last comprehensive review of cancer of the tongue treated by the Head and Neck Service of Memorial Hospital in New York was reported in 1940, at which time the cure rate was 25%. In the attempt to improve results the emphasis has shifted in the ensuing years from primary reliance on irradiation to a more aggressive surgical approach.

The current review covers the years 1939 - 1953, during which time 1,554 new patients with tongue cancer were seen. Seventy-eight per cent of the cases were previously untreated at the time they were first seen.

In the review of clinical aspects it is of interest to note the age range from 19 to 91 years, and the steady gradual increase in the number of women with carcinoma of the tongue. Three-fourths of the lesions started on the anterior two-thirds of the tongue. Forty per cent of patients had clinical evidence of cervical lymph node involvement at the first exam. Twenty per cent of those with positive nodes had bilateral involvement.

Although there was almost equal applications of irradiation or surgery as the initial treatment for the primary lesion for the series as a whole, it is noted that four-fifths of the patients treated surgically had lesions involving the anterior two-thirds of the tongue. Twenty-two per cent of the surgically managed patients were prior radiation failures. Multiple primary cancers were present in 11% of the patients.

The over-all cure rate for the series was 30%. Of the patients who were suitable for treatment and whose status was known for five years or more, the cure rate was 35.4%.

Arguments for and against prophylactic neck dissection are discussed. Many factors influencing prognosis are reviewed. Outstanding among these are the size of the primary. Under 2 cm the cure rate was 61.2% while the salvage rate was only half as much for lesions greater than 2 cm. The presence of regional lymph node metastasis was an ominous sign. Cure rate for patients who had lymphatic node metastases on admission was only 17% compared to 49% in those without node involvement.

The authors assess the conditions influencing the choices between surgical and irradiation treatment, and fairly recognize the fact that the groups of patients are not comparable. Nevertheless, their evaluation would suggest the superiority of surgery as the treatment of choice, when possible, particularly for treatment of cervical metastasis.

The comprehensive clinical experience presented in this article represents an excellent review of a difficult problem. The group deserves commendation for progressive improvement in their results. It becomes apparent that although carcinoma of the tongue remains a vicious lesion, considerable improvement can be obtained by prompt biopsy of any suspicious oral lesion by the family physician or dentist.

Robert N. Hammerstrom, M.D.
Minneapolis, Minnesota

Frazell, E. L., and Lucas, J. C. "Cancer of the Tongue" Cancer 15:1085, Nov.-Dec. 1962.

RETROPERITONEAL TUMORS

The author discusses observations on 24 patients with primary retroperitoneal tumors (not including renal tumors) who were treated over a period of 15 years (1946 to 1961) at the surgical clinic of the University of Leipzig. The ages of the patients ranged from 2 to 74 years (average 49 years). The tabulation of the histological diagnoses shows that 22 of the 24 patients had true tumors and 18 of these had signs of malignancy. The symptoms were not characteristic, and their interpretation was difficult. Four of the patients consulted their physician only because their abdomens had become enlarged; they had no other complaints. Eight of the patients exhibited advanced cachexia; despite the rather heavy tumor they had lost up to 15 kg. in weight. Fifteen patients complained of pain elicited by pressure in the retroperitoneum or on adjacent organs with corresponding functional impairment. The case history of a child is presented to illustrate the misleading character of the symptoms. The preoperative diagnosis was correct in only two thirds of the patients. Erroneous diagnoses included pancreatic tumor (3 times) renal tumor, liver cyst, stomach tumor, retroperitoneal hemorrhage, and ileus. Surgical treatment should be performed as early and as radically as possible. Postoperative irradiation and close follow-up are essential, because there is a tendency to recurrence. Even if multiple histological sections indicate that the tumor is benign, malignancy should be suspected and the patient treated accordingly.

Courtesy of References and Reviews
Journal of the American Medical Association

Wehner, W.
Bruns Beitr Klin Chir 205:53 Aug. 1962

Continued

NASAL OBSTRUCTIONS

Nasal obstruction may be due to other conditions besides infection. The behavior of the nasal blockage is important, especially its locaton and duration, whether it is intermittent or continuous and the color, consistency, odor and location of the nasal discharge, if any.

The commonest cause of obstruction in children is acute infectious rhinitis usually caused by a virus plus bacterial infection. The nasal obstruction results from congestion of the nasal mucosa and accumulation of discharge. The symptoms of acute viral rhinitis and of nasal allergy are often similar. The nasal mucosa in viral rhinitis is red, whereas it is pale in allergic rhinitis.

Nose drops should be used judiciously in these cases. After shrinking, the mucosal vessels become engorged beyond their previous state, and if decongestants are used for long periods they may produce a rhinitis medicamentosa.

Acute suppurative sinusitis sometimes occurs as a complication of acute viral rhinitis. Orbital cellulitis, a serious complication of ethmoiditis in children, results when infection spreads through the lateral ethmoid plate to the periodbital tissues. Edema and inflammation of the eyelids, with proptosis, result as the disease advances. On the homolateral side of the nose the middle turbinate is red and edematous and there is pus in the middle meatus. Sometimes a periorbital abscess develops from periorbital cellulitis.

Allergic rhinitis results from a patient's sensitivity to some irritant in his environment. Seasonal allergic rhinitis results from sensitivity to grasses, trees or ragweed. Allergic rhinitis is characterized by a clear watery rhinorrhea. Nasal allergy is confirmed by finding eosinophils microscopically in the stained smear of nasal secretion.

A large adenoid mass may cause nasopharyngeal obstruction and mucous pools in the nose similar to an allergy. Nasal polyps and chronic suppurative sinusitis are rare in children.

Choanal atresia occurs when the nasopharyngeal membrane fails to perforate during embryonic development; the diagnosis is verified when a catheter will not pass into the nasopharynx.

Nasal meningocele, a herniation of dura or cerebral tissue into the nose, is best removed through a cranial approach to prevent cerebrospinal fluid rhinorrhea.

A frequent cause of nasal obstruction in children is a foreign body.

In nasal injuries, obstruction may result from edema and derangement of the injured nasal components. If interstital edema or hemorrhage is present bony crepitus is difficult to feel and fracture lines are indefinite on x-ray films.

In most cases of nasal fractures, tetanus toxoid or antitoxin should be administered and antibiotics prescribed to treat infection. Sometimes hematomas develop between a nasal cartilage and its perichondrium after injury. They appear as a swelling adjacent to the cartilage and are soft on palpation. These hematomas should be evacuated to prevent necrosis.

Of all the causes of nasal obstruction tumors are the most serious. Nasal cancers in children are usually sarcomas. A benign tumor that sometimes occurs in the nasopharynx of young boys is the angiofibroma. Because its many blood vessels lack circular muscle fibers, the condition causes frequent and severe nosebleeds.

Courtesy of World-Wide Abstracts
Excerpta Medica Foundation

Ritter, F. Uni Mich Med Bull 28/2:74-79

CONCUSSION IN BOXERS

The mechanisms of cerebral concussion in boxing were studied in nearly 1200 boxing matches by recording hits, knockouts, groggy states and so on by cinematography.

The mechanisms distinguished are: directly mechanical, from dislocation of brain and cerebrospinal fluid as a result of the blow; vibratory, from cerebrospinal fluid waves; vascular reflex mechanisms, arising when the carotid or the cardiac or mesogastric region is hit, and nervous reflex mechanisms, mostly following a hard blow on the jaw.

The boxers were examined neurologically before and after the match, with a control series of 1000 nonboxers of similar ages.

Chronic boxer's encephalopathy, a late result of repeated head injuries, occured in about 9 percent of the series.

Courtesy of World-Wide Abstracts
Excerpta Medica Foundation

Sercl, M. and Jaros, O., World Neurol 3/5:351-58

STEROIDS AND INTRAOCULAR PRESSURE

Forty-eight patients on long-term systemic corticosteroid therapy were examined with applanation tonometry and water provocative tonography. The intraocular pressure was statistically significantly increased, and the mean facility of outflow and mean ocular rigidity decreased in the steroid-treated group, when compared to a nonsteroid-treated control group. Patients receiving steroids for more than 4 years had a higher intraocular pressure than those on steroids for less than one year. The possible mechanism of a steroid effect on aqueous dynamics is discussed.

Courtesy of References and Reviews
Journal of the American Medical Association

Bernstein, H. N., and Schwartz, B.
Arch Ophthal 68:743 Dec 1962

HEPATIC ENCEPHALOPATHY

Hepatic encephalopathy is by now a well recognized complication of portal-systemic shunting which may occur spontaneously as a result of a portal bed block, or be secondary to a surgically constructed shunt. Many cases can be controlled on a medical program, but not infrequently this complication becomes a progressive and incapacitating disease, refractory to any type of treatment. It is presumed that this central nervous system disorder is caused by ammonia from the large bowel bypassing the liver and directly affecting the brain; consequently, three patients with progressive encephalopathy were treated surgically by an operation excluding the colon from the main current of gastrointestinal contents. Technically, this amounted to an ileosigmoidostomy with the excluded colon left in situ, drained by a mucous fistula. In all three patients severe central nervous system symptoms completely disappeared. Metabolic studies, including ammonium tolerance tests and urea tolerance tests pre- and postoperatively, are reported in these patients, as well as ammonia levels correlated with electroencephalographic changes, psychological testing, and other parameters of central nervous system function.

Courtesy of References and Reviews
Journal of the American Medical Association

McDermott, W. V., Jr., Victor, M., and Point, W. W.
New Engl J Med 267:850 Oct. 25 1962

End

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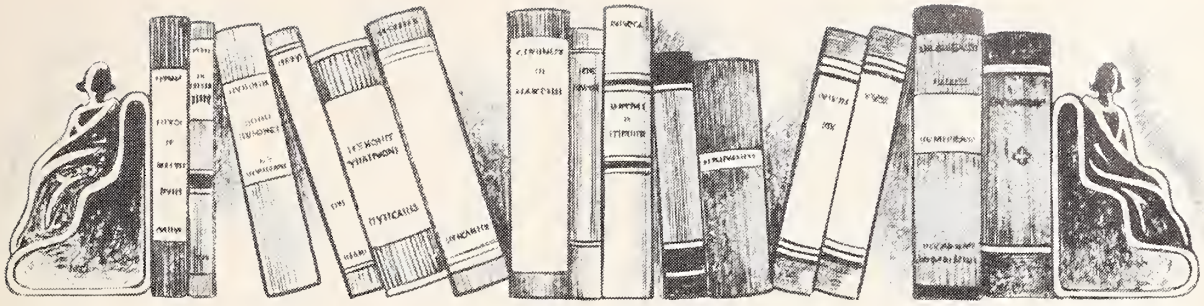
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Book Reviews

A PRIMER OF CARDIOLOGY — George E. Burch Philadelphia, Lea & Febiger, 366 pages Third Edition, 1963

Dr. Burch's skill as a teacher of clinical cardiology is evident in the third edition of the "Primer". The book is intended for medical students and physicians in training in general internal medicine. Physicians in practice will find in this volume much that is worthwhile; it will help to recall basic principles and practical aspects of physical diagnosis that may have been allowed to slip from memory and hence from use.

The liberal use of outlines, diagrams and sketches enhances the value of this book as a teaching device. This monograph is not encyclopedic but many of the relatively uncommon forms of heart disease and all of the common forms receive attention.

No effort is made to discuss electrocardiography. At first, this many seem a serious omission. However, the author emphasizes, the need to concentrate on the basic aspects of clinical cardiology before undertaking a study of electrocardiography. It is difficult to disagree with the soundness of that approach. The "Primer of Cardiology" can be recommended as a practical, readable and instructive volume.

F. W. Hoffbauer, M.D.
Minneapolis, Minn.

THE FAT BOY GOES POLYUNSATURATED — Elmer Wheeler New York, Doubleday & Co., Inc. 156 pages, 1963

If, as a doctor, you no longer wince when the patient asks about his cholesterol "count", you can tolerate this sequel to "The Fat Boy's Book". Anyway, the book is for the patient, not the doctor.

Elmer Wheeler really does a good job in getting the "message" across to the reader. In a humorous manner he successfully explains to the patient the desirability of adopting, and adhering to, a low fat diet. The book contains sound dietary advice regarding meals eaten at home and meals eaten at restaurants and at social gatherings. The presentation is breezy and sophisticated. It will probably stimulate more patient cooperation than would a more serious and scientific approach. It can be recommended for most patients who need to avoid an excessive fat, and particularly an excessive saturated fat, intake.

F. W. Hoffbauer, M.D.
Minneapolis, Minn.

ATHLETIC INJURIES by Drs. Lynn O. Litton* and Leonard F. Peltier. Little Brown Co., Boston, 1963.**

This useful volume has been appropriately dedicated to "all those who have experienced the joys and satisfactions to be found in sports and games." It is a lucidly written book which provides pertinent information concerning athletic injuries for the physician dealing with athletes. Moreover, it provides practical advice that will be helpful to coaches and trainers as well.

The authors have carefully selected what appear to be the best available methods of dealing with the large variety of injuries that occur in connection with athletic events. The approach appears to be particularly sound in that emphasis is placed upon understanding the mechanisms of injury as an aid to prevention and diagnosis as well as discussing explicitly methods of management.

The book is ably written and fills a long existent need.

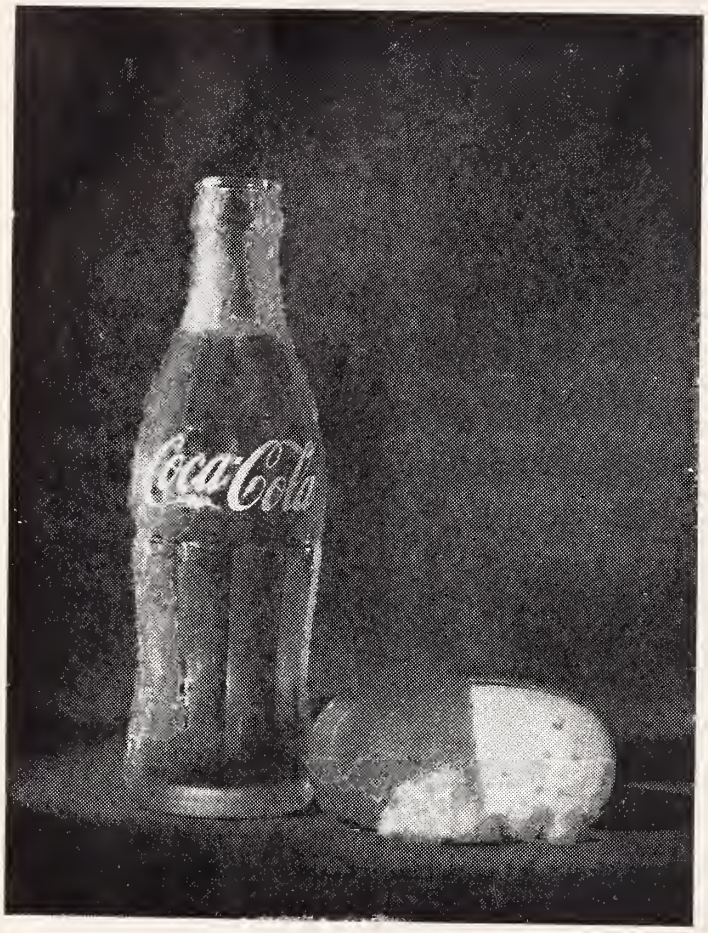
Stuart W. Arhelger, M.D.
Minneapolis, Minn.

* Associate Professor of Orthopedic Surgery, University of Kansas School of Medicine.
** Professor and Head, Section of Orthopedic Surgery, Department of Surgery, University of Kansas School of Medicine. See editorial "Athletic Injuries" pp. 561 this issue.

THE INNERVATION OF BLOOD VESSELS — T. A. Grigor'eva New York Press, 442 pages, 1962 (Translation, by Catherine Matthews and C. R. Pringle, of the original volume Innervatsiya Krovenoshykh Sosudor Medgiz, 1954, Moscow)

This monograph will certainly be of value to students and investigators in anatomy and physiology concerned with problems related to vascular function and control. The reproductions of the photomicrographs are unfortunately relatively poor. The great value of the book lies in the extensive review of the world's literature, to 1954, concerning blood vessel innervation. The reference list contains 1000 entries, complete with titles. The latter are translated into English.

F. W. Hoffbauer, M.D.
Minneapolis, Minn.

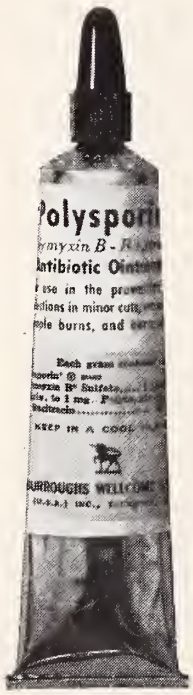


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Special Articles

Frontier Medicine at Namkham Hospital, Burma

M. D. OLMANSON, M.D.,
G. S. SEAGRAVE, M.D.,
VIOLET POO NYO, M.D.
Namkham, Burma

Editors Note: Dr. M. D. Olmanson has recently returned to St. Peter, Minnesota.

NAMKHAM HOSPITAL is a non-political non-sectarian, non-profit, charitable institution located in a "frontier area" one mile from Communist China. The hospital was started by the American Baptist Mission as a dispensary in 1902 and was taken over by Dr. Gordon S. Seagrave (the Burma Surgeon) in 1922. He built it from a one building, one patient, 10 bed hospital to its present six stone hospital buildings with 325 beds and 50 mats. Now, additional medical and nursing help is urgently needed. We hope to inspire a Minnesota doctor and nurse to join our group and help carry this humanitarian project forward.

American financial support now comes mainly from the American pharmaceutical industry and the American public through contributions to the American Medical Center for Burma, Inc. Local financial support comes from the Governments of the Union of Burma, Northern Shan States, Kachin States, Fulbright scholarships (for student nurses in training here) and from voluntary contributions made by the patients.

The medical staff, during January, 1962, consisted of the three authors (the fourth doctor, O. B. Silgardo, M. B. B. S. was on leave for five months.) The nursing staff consisted of 20 staff nurses, all R. M. N.'s (Registered Midwife as well as nurse) and the two nurses who have had laboratory and x-ray training in Louisville, Kentucky. There were 79 student nurses, including 24 R. N.'s taking the fourth year which is midwifery. The present freshman class admitted in April contains 60 girls which brings the number of nursing students to 115.



Dr. M. D. Olmanson, Mrs. Olmanson and Dr. G. S. Seagrave

Continued

The patients consist of the many races of Burma. Approximately 40% are Shans (a branch of a racial group originating in South China which also includes the people of Laos and Thailand); 25% are Kachins (a race very much like the American Indians); 15% are Paloungs (a very conservative, industrious mountain people), and 10% are Chinese (nearly all domiciled in Burma). The remaining 10% are Burmese, Pakistanis, Gurkha, Chin, Lisu, Lahu, Wa, and Karen. Over 75% of the patients are rural or hill people. The predominant religions are Buddhism, Christianity, and Animism. Communication poses a major problem since each of these races has its own language. Fortunately we have nurses of nearly every Burmese race and some speak up to 12 languages and dialects. They are indispensable as interpreters.

January, 1962 was chosen as the month for this study and is a representative period except for the low incidence of elective surgery (cataracts, hernias, etc.) and the low incidence of malaria which is more common in the spring and fall (Graph I). January is the coldest month (down to 40 F.) and has a large number of feasts and holidays which tend to decrease our work load. All of the 395 patients discharged in January are included in this sampling but no attempt was made to analyze the 654 outpatients treated during this month or the 6 home deliveries.

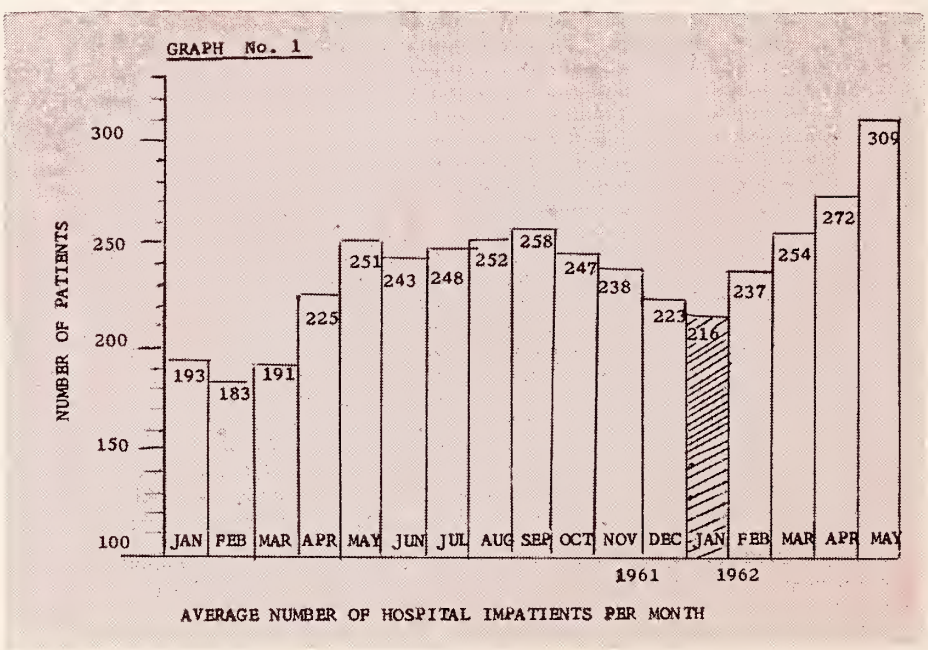
During 1961, 6,180 inpatients and 10,582 outpatients were treated. The medical-surgical group of patients (291) are separated from the maternity-newborn group (104) in the following discussion. References to distance travelled, age of the patients and diagnosis apply only to medical-surgical patients except where the maternity patients are specifically mentioned.

One of the most striking discoveries was the distances travelled by patients to come here. One patient in five (21%) came over 100 miles (which usually takes two or more days by car, bus, train or boat, plus foot travel). Thirty-one per cent of the medical and 41% of the surgical patients came from over 40 miles away. This in spite of the fact that there is a second hospital 72 miles in one direction and a third 130 miles in another direction which have to be bypassed to get here. In contrast, only 15% of the maternity patients came from over 40 miles away; 70% came from within 10 miles.

The ages of our patients are different from the hospital populations in the United States and probably reflect the numbers of people found in the different age groups in this population. Only 10% of the medical-surgical patients were over 50 years of age (see Graph 2). In the 0-10 age group half are 2 years of age or less. Obstetrical patients and newborns are not included in the graph. Half of the maternity patients were age 26 or less with the range being from 16 to 50.

Length of Hospital Stay

The median length of stay was 14 days, 12% of the patients stayed over 30 days. Hospitalization was sometimes prolonged because of the distance from home. Patients from long distances



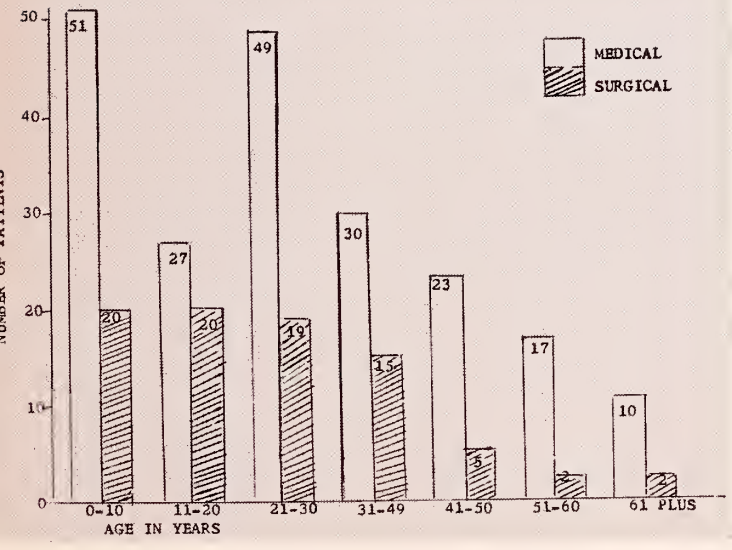
often came to the hospital in groups with several requiring surgery and, the rest having various medical complaints; they all stayed until everyone was ready to leave. The median length of stay for obstetrical patients was 6 days and 66% left the hospital 5 days or less after delivery.

Diagnosis

Although some illnesses undoubtedly were overlooked (and some misdiagnosed) due to hurried examinations and lack of certain laboratory facilities, we believe that avoidable error has been cut to a minimum by our cross-check system and maximum utilization of the laboratory. Seriously ill patients were seen daily or oftener and all patients were examined weekly on rounds. Miss Esther Po does 95% of the laboratory work and is helped in emergencies by Miss Pansy Po who is the coordinator of nursing education. In January we performed 1372 laboratory procedures and 28 x-rays were taken (this is an average of four tests per patient, excluding newborns). These tests consist of complete blood counts (hemoglobin, white blood count, differential and malaria parasite) - 363; other blood counts (usually hemoglobin, white blood count, malaria parasite) - 97; sputum for acid fast bacilli - 133; stool for ova and amoeba - 125; urinalyses - 472 (½ were for sugar only); smears for gonorrhea - 145; miscellaneous (throat smears, spinal fluid examination, blood crossmatch, etc.) - 37.

A total of 739 positive diagnoses were made on 291 medical-surgical patients. It is common for a single patient to have 5 or more illnesses concurrently, e. g., an abscess (surgical), anemia, hookworm, malaria, and tuberculosis (medical).

GRAPH NO. 2



The following is a breakdown of these diagnoses:

Graph No. 3
Medical Diagnoses — January 1962

Anemias (Lower than 10 gm.% Hemoglobin)	151
Goiter (estimated)	80
Hookworm (Stool +) (Clinical) Anemia & 5% Eosinophil	72
Gonorrhea (Genital +) (Eye +)	56
Malaria	42
Tuberculosis	41
Dysentery	24
Miscellaneous respiratory	23
Ear, Nose and Throat	23
Dermatologic	22
Gastrointestinal	21
Miscellaneous parasites and infections	21
Cardiac	13
Genitourinary	10
Neuropsychiatric	10
Opium addiction	9
Gynecologic	9
Beri Beri	8
Eye	6
Cancer	5
Diabetes	5
Hemorrhagic Diathesis	1

Discussion

Only two of the six major categories are tropical diseases. Degenerative diseases are far down the list and viral diseases are rarely seen. The usual childhood diseases include pertussis and diphtheria and we usually do 1 or 2 tracheotomies a month for diphtheria.

The anemias were due to disease (hookworm, malaria, amoebiasis) and dietary deficiencies. Six patients had less than 5 gm.% hemoglobin on admission (in May there were 3 patients with 1.6 gm.% and one with 0.8 gm. %, the latter had hemolytic anemia).

Gonorrhea is seldom virulent; epididymitis and urethritis are rare; but late complications such as sterility, tubal pregnancy, and chronic pelvic inflammatory disease are common. Of 83 women who had 1 or 2 routine vaginal smears there were 45 positive for gonorrhea. "Pink eye" is gonorrheal ophthalmitis 75% of the time in our part of the world.

Malaria is no longer a dread disease. Plasmodium falciparum (malignant tertian, aestivo-autumnal) is prevalent here with an occasional case of P. vivax. No complications were seen and all cases responded readily to treatment. Contrast this to 1939-1940, when Dr. Seagrave annually treated an average of 450 cases of blackwater fever, 30 cases of cerebral malaria, and 50 cases of algid malaria due to p. falciparum.

Tuberculosis is the dread disease today. We are unable to adequately care for patients with pulmonary tuberculosis and have no means of bringing contacts in for treatment. Probably 25%

Continued

of our patients have active TB but only one quarter that many have positive sputums since, only 1 or 2 sputums are examined on each suspected case. Of those seen during January with positive sputums, there were 12 aged 14-30, 7 over 30, and one aged 4 years. Only 6 of these 20 stayed over 30 days and 3 stayed 14 days or less. Obviously we cannot properly "arrest" the disease under these conditions.

Miscellaneous parasites and infections included tapeworm, 6; roundworm, 2; Hansen's disease, 2; pertussis, 2; secondary syphilis, 2; influenza, 2; typhoid, 1; Kala-azar, 1; meningococcal meningitis, 1; and non-specific infections, 3.

Cardiovascular problems included hypertension, 4; congestive heart failure, 4; old rheumatic valvular disease, 3; acute rheumatic fever, 1; myxoma, 1.

There was one manic-depressive psychosis and 9 cases of opium addiction treated. Neurosis is uncommon and no diagnosis of purely functional disease was made during this month.

There were 7 patients with carcinomas seen and 5 were non-surgical; one had inoperable carcinoma of the tonsil; one had carcinoma of the cervix and refused operation; one had carcinoma of the maxillary antrum and was already treated with irradiation; one had carcinoma of the stomach amenable only to palliative gastrojejunostomy which had been performed 4 months previously; and one had acute lymphatic leukemia.

Case Report

This interesting patient was a 24 year old Chinese female admitted December 31, 1961 with complaints of edema, vertigo and headache of three months' duration. She had had a similar illness 6 months previously which was relieved by Chinese medicine.

Physical examination revealed a pale, edematous woman with moderate respiratory distress. Temperature, pulse, and respirations were normal. There was a grade 2 pulmonary systolic murmur and grade 3 mitral systolic murmur with rales and wheezes bilaterally. Blood pressure was 184/110. The spleen and the liver could not be felt and the pelvis was normal. Laboratory examination showed a hemoglobin of 5.9 gm.% and white blood cell count of 8,950. There were 2 eosinophiles, 60 neutrophils, and 38 lymphocytes; no malaria parasites were noted. Urinalysis was positive for red cells, white cells, and casts; albumin was 3 plus and no sugar was found.

She received chlorthiazides, reserpine, vitamins, antibiotics, iron and hydrocortisone. Her blood did not crossmatch with her husband's. On January 5 she had a convulsion although her blood pressure was normal. On January 6 digoxin was begun because of increasing dyspnea and edema. She expired at 5:40 p. m.

Postmortem examination showed gross anasarca with free fluid in the body cavities. The heart was enlarged two times and a myxoma was found half filling 3 chambers (both ventricles and the right atrium). The lungs were edematous and had widespread tuberculosis bilaterally. The stomach and intestines were normal except for the presence of ascaris lumbricoides. The liver was enlarged two fingerbreadths below the costal margin but was otherwise normal appearing. The kidneys were atrophied to half normal size with numerous petechial hemorrhages on cross section. The adrenals were also atrophied. The uterus and adnexae were atrophic, no fetus was present.

This case represents the multiplicity of diseases which we often encounter in one person. Her major diseases were glomerulonephritis, myxoma of the heart chambers, and severe pulmonary tuberculosis. She also had ascariasis, severe anemia, adrenal insufficiency, and hepatomegaly.

Surgical Diagnoses were made as Follows during the Month of January:

Abdominal—10 Cases	*Treatment*
Perforated gastric ulcer	Operative closure of the perforation
Acute appendicitis	Appendectomy
Uterine myomas-hypermenorrhea	Total hysterectomy
Ruptured tubal pregnancy (2 weeks) (3 days)	Unilateral salpingectomy and oophorectomy
Vesical calculus	Suprapubic lithotomy
Adenocarcinoma stomach	Subtotal gastrectomy
Chronic pancreatitis and amoebic colitis	Exploratory laparotomy
Indirect inguinal hernia, bilateral	Bilateral herniorrhaphy
Calcified Missed abortion	Hysterotomy

Thyroid—6 Cases	*Treatment*
Adenocarcinoma thyroid	Subtotal thyroidectomy
Abscessed adenoma thyroid (2 cases)	Drained, later subtotal thyroidectomy
Ectopic thyroid nodule	Surgically excised
Adenoma thyroid (2 cases)	Subtotal thyroidectomy

Plastic—6 Cases	*Treatment*
Double harelip	Repaired—this patient was from China and walked 3 days to get here.
Single harelip	Repaired surgically
Relaxed vaginal outlet	Cystocele-rectocele repair
Burn scars, hand	Full thickness grafts to palmar surfaces of 4 fingers in 2 stages
Scarred upper lip with retraction	Repaired surgically



Typical Scene in Nemkham, Burma

Eye—3 Cases	*Treatment*
Staphyloma of the cornea	Enucleation
Bilateral corneal opacities	Iridectomy
Pterygium	Excision of pterygium

Tonsillectomy and adenoidectomy (10 cases) (aged 14 to 18)

Dilatation and curettage (7 cases) (incomplete abortions, abnormal bleeding and sterility)

Circumcision (6 cases) (all for phimosis or paraphimosis —aged 1-35)

Abscesses (18 cases) (Many were large, especially breast abscesses, and often yielded 200-500 cc. of pus.)

Miscellaneous (21 cases) (Saucerization of osteomyelitis of the tibia, hydrocelectomy; removal of small cysts and tumors, pinch grafts, burns, tooth extractions.) (About 60 teeth a month are pulled by the nurses in the OPD.)

Pathology Coverage for our Hospital

Through the courtesy of Dr. Khin Maung Win, Chief of the Pathology Department, Rangoon College of Medicine, we are able to get pathological reports on important surgical specimens. There is no charge for this service.

Blood is usually unobtainable and we frequently are forced to do surgery on patients with less than 8 gm.% hemoglobin. Preoperative preparation of seriously ill patients frequently takes several weeks. In the case of the patient with gastric cancer we not only had to medically improve his condition, but, since he was a Buddhist priest, we had to justify the need for surgery to his followers. Following a subtotal gastrectomy with a Bilroth II reconstruction the patient died during the first postoperative week of hepatic failure. His cirrhosis was advanced and worsened by chloroform anesthesia.

Maternity and Newborn

There were 46 women delivered of babies and 14 undelivered in the maternity group. The undelivered women were worked up as general medical cases and had the usual medical diseases as well as complications of pregnancy.

All deliveries are handled by the midwives under the supervision of Miss Emily Benjamin, RMN, except for forceps deliveries and Cesarean sections. The statistics are not as complete in this group because only about half were seen by a doctor before delivery and the other half came in, delivered, and left without being examined by a doctor (one-third stayed two days or less following delivery).

Complications of some sort were present in 23 of the 46 deliveries. Five had abnormal presentations; 4 were breech and 1 was transverse (2 of these delivered macerated fetuses). Two patients had contracted pelves, one required a forceps delivery and the other sustained partial separation of the placenta. Five of the remaining patients had a hemoglobin of less than 7.5gm.%. One of these with 5 gm.% hemoglobin had toxemia with a blood pressure 170/100, gonorrhea, malaria and probably syphilis. Four others required manual removal of the placenta and five had positive gonorrhea smears. Of the remaining two, one had malaria and diabetes and the other had hookworm, tapeworm, and tuberculosis.

Of those delivered, 11 were primiparas and 9 were para 10 or more. There were 43 multiparas in the entire group of 60, all of whom had given complete obstetrical histories. They had had

Continued

a total of 213 previous pregnancies with 124 living children, 5 stillbirths, and 19 abortions. In other words, of the 189 live children born to these women 65 were now dead at the time of the history taking. This is a special group which is enlightened enough to use the hospital for their maternity care but who also have a higher incidence of abnormal births than the general population. Dysentery, malaria, vitamin deficiencies, pneumonia, tuberculosis, diphtheria, pertussis and typhoid are still very prevalent among children in this area.

The 44 living newborns survived and were discharged from the hospital in good condition. Twenty-four were female and averaged 6 lbs. 8 oz.; the 20 male infants averaged 6 lbs. 14 oz.

There were no multiple births in this month although a set of triplets was delivered in December and another in March. Our Cesarean section rate averaged over a year is 6-8% due to the large number of complications.

Results of Treatment

Of the 291 medical-surgical patients, 180 were discharged as cured, 62 relieved, and 45 "unimproved." There were four deaths during this month. People here do not like to die in a hospital because Shan custom does not permit transportation of dead bodies to or through villages. If a patient appears to be near death the family will often remove him from the hospital in order that he may die at home. There were no such cases in January but obviously if some had stayed long enough they would have died here, e. g., the girl with leukemia who only stayed long enough to find out that we wouldn't operate on her large spleen. The maternity and newborns all did well. The two stillbirths were not counted in the deaths since they were dead on arrival.

Summary

Namkham Hospital is a unique institution, playing a major health role in an important part of the world. We are privileged to practice 20th Century medicine largely because of support received from American Pharmaceutical industries and the American public. This study attempts to show in depth what the work here is like but is unable to convey the breadth in variety of problems we encounter, particularly surgical.

In the three month period immediately following this study we saw a number of conditions rarely seen even at the most prominent American University hospitals illustrating the profound variety of diseases to be treated here.

1) A two month old male with imperforate anus (type 3) and rectovesical fistula. A perineal repair was made with difficulty since the blind pouch of the rectum was 3 cm from the anal skin.

2) A four year old male with cystic hygroma of the left cervical and scapular areas. A number of communicating cysts were dissected out in two stages.

3) A nine year old male who had cardiac arrest while getting a pinch graft on a foot ulcer. Closed chest cardiac massage was begun within one minute and the heart began to beat again after 10 minutes. There was slight brain damage from which he has recovered almost completely.

4) A 32 year old woman came in after three days labor and ruptured her uterus here; she had had a previous Cesarean section. A Cesarean section was done immediately and both mother and child survived.

5) Abruptia placentae at eight months pregnancy in a 29 year old woman who denied pregnancy since she wasn't married. She had had an "abdominal massage" for stomach pains before coming here. Cesarean section was done immediately and a dead fetus was found. At this point it was noted that the blood was not clotting and a diagnosis of afibrinogenemia was suspected (the blood had not clotted 30 minutes later). She received two bottles of plasma since blood was not available for her. Just as the uterus was sewed up her heart stopped beating and subdiaphragmatic cardiac message was begun. After several minutes the heart began again and she eventually made a complete recovery.

6) A one year old male with intussusception of the ileum and most of the colon through the rectum for -

two days. We felt there might be a slight chance of helping him so we removed about two feet of ileum and most of the colon which was either gangrenous or pregangrenous. After the ileosigmoidostomy was performed the patient began vomiting fecal matter, aspirated, and died.

7) A 29 year old male with a urethroperineal fistula for one year following a gun shot wound while hunting tigers. The two ends were sutured over a catheter and he eventually regained the use of his urethra.

8) Two women with trimalleolar fractures of the ankle — one waited four weeks and the other eight weeks before coming in. Arthrodesis was done in both instances.

9) A 52 year old father of one of our nurses with a retroperitoneal cyst containing 3000 cc of fluid. The cyst was drained and packed with gauze which was removed over two weeks' time taking the lining of the cyst with it.

10) A six year old girl with a subdural hematoma which developed 10 days after a bicycle accident. Burr holes were made and the blood removed with considerable relief but after several days she bled again and developed cerebral edema. She was taken home and died there several days later.

11) A 23 year old man was carried in with gangrene of the scrotum of 17 days' duration. He proved to have an incarcerated loop of ileum in the scrotum which became gangrenous and ruptured, eventually draining fecal matter through the scrotum. The involved ileum was removed and an end-to-end anastomosis done. The postoperative course was stormy but he has now gained 30 lbs. and feels fine.

We believe Namkham Hospital offers an unusual opportunity to a good general practitioner. We need another American physician to join us and also an American nurse to help with the nurses' training school. Anyone interested may write the American Medical Center for BURMA, Inc., 6 Penn Center Plaza, Philadelphia 3, Pa., for information. Please give us your qualifications and reasons for wishing to come when you write.



Namkham Hospital

Tell me thy company, and I'll tell thee what thou art. — Cervantes



BREAST CANCER will strike one of every twenty women in the United States. At present rates, less than half of them will be cured.

Breast cancer is a disease of immense frustration for the physician... and is one of woman's deepest fears. Yet, for the individual patient, there *is* hope. Five-year cures result in 82% of *localized* cases.

Monthly breast self-examination and annual health checkups are essential in uncovering such cases. Essential, too, is person-to-person exchange between doctor and patient, to give women a chance to resolve their anxieties about this disease... anxieties which paralyze judgment and delay life-saving action.

The Society's newest film, "Breast Self-Examination," has been highly praised by physicians and laymen. A physician is present at each showing so that women may ask questions and be influenced to see their own doctors promptly about any breast problem.

The Society is working intensively on the breast cancer problem, through research and education. Through our concerted efforts... yours, doctor, and ours... we *will* prevail against this great enemy.

AMERICAN CANCER SOCIETY®



Board of Medical Examiners

ST. PAUL ABORTIONIST PLACED ON PROBATION AFTER CONVICTION BY JURY

Re: State of Minnesota -vs- Josephine D. Zecher

On March 15th, 1962 Josephine D. Zecher, 31, 1676 Marshall Avenue, St. Paul was sentenced for the crime of abortion by the Hon. John W. Graff, Judge of the District Court of Ramsey County, to a term of not to exceed four years in the Reformatory for Women at Shakopee, Minnesota. The Court then stayed the execution of the sentence, however, and placed the defendant on probation under the supervision of the Ramsey County Probation Office for a period of four years. Mrs. Zecher, who had been charged with the crime of abortion in a complaint issued by the Ramsey County Attorney's office and signed by legal counsel for the Minnesota State Board of Medical Examiners, was tried before a jury in a case which commenced in Judge Graff's court on January 22nd, 1962. At the conclusion of the trial on January 31st, 1962 the jury of ten men and two women found the defendant guilty as charged, after having had the case under deliberation for nineteen hours.

At the trial a 26-year-old married woman, who was formerly employed as a waitress in the restaurant of a St. Paul bowling alley, testified that when she learned that she was pregnant she discussed the matter with her employer who advised her to call a certain St. Paul telephone number and ask for "Dovey". After making the telephone call and talking with "Dovey", who was subsequently identified as the defendant, the woman drove to Mrs. Zecher's home, where the defendant performed the abortion by means of inserting a catheter. The patient also testified that the defendant administered antibiotic medications to her at that time. Three days later when the patient began flowing heavily she again drove to the defendant's home, at which time Mrs. Zecher gave her an injection of a medication to stop the flow of blood. However, when the patient continued flowing, the defendant drove her to a St. Paul hospital where she was hospitalized.

The patient's former employer, who also testified at the trial, paid the defendant the sum of $50.00 of the agreed price of $250.00 for performing the abortion and the evidence indicated that the balance remained unpaid. Mrs. Zecher has no training in medicine and holds no license to practice any form of healing in the State of Minnesota.

ST. PAUL MAN SENTENCED FOR SELLING UNLABELED POISON

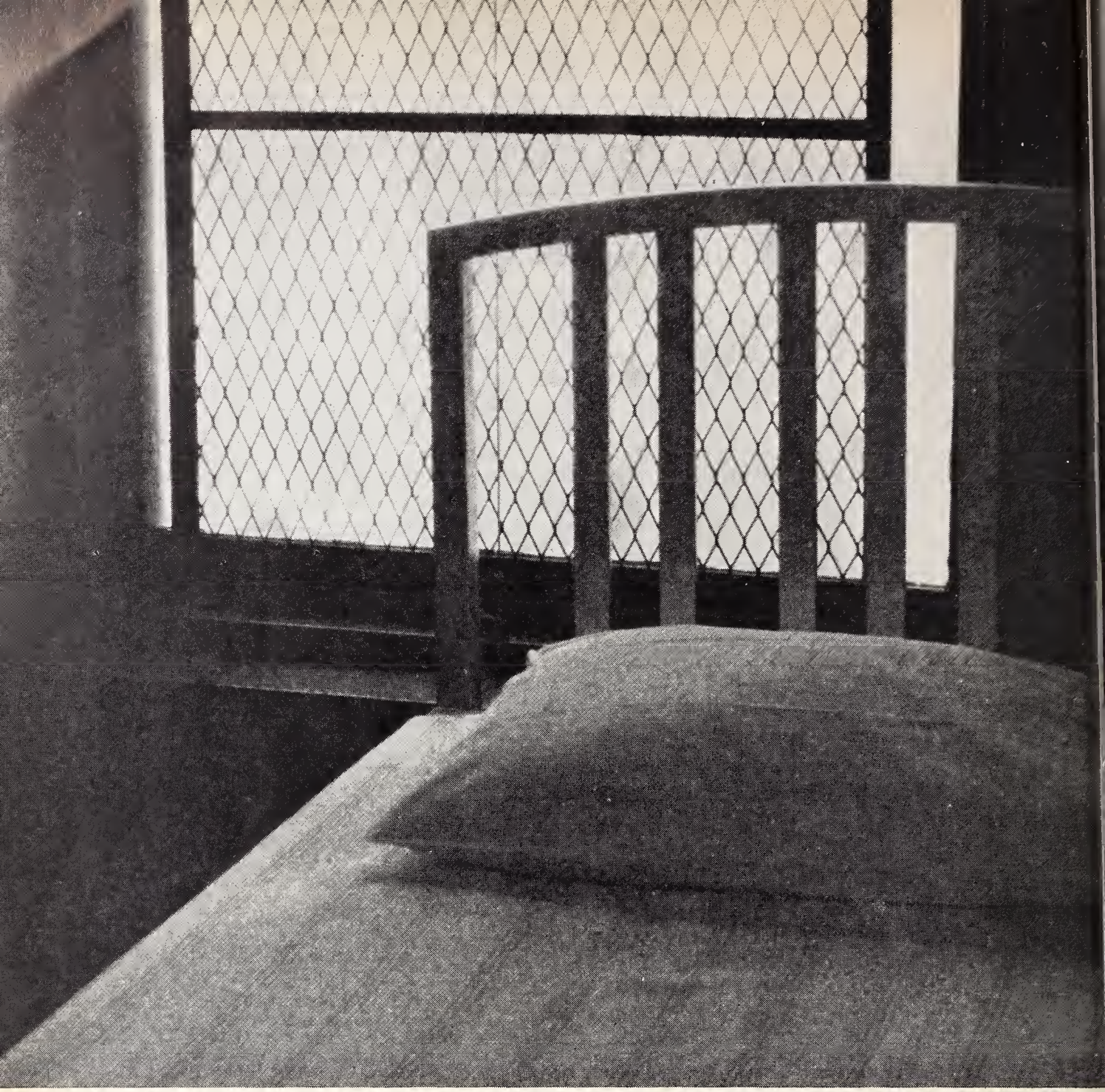
Re: State of Minnesota -vs- Harry Linden

On April 26th, 1963 Harry Linden, 30, 1264 Wellesley Ave., St. Paul entered a plea of guilty to the crime of unlawfully selling at retail a poison, bichloride of mercury, without labeling it as a poison and he was immediately sentenced by the Hon. David E. Marsden, Judge of St. Paul Municipal Court, to pay a fine of $25.00 or serve two days in the St. Paul Workhouse. Linden paid the fine.

On March 8th, 1963 an attorney for the Minnesota State Board of Medical Examiners signed a criminal complaint against the defendant after a 23-year-old St. Paul divorcee had been hospitalized in Ancker Hospital as a result of using a douche which contained water and three bichloride of mercury tablets. According to her signed statement, the tablets had been dissolved in a pop bottle almost full of water and immediately after taking a douche with the solution she experienced a painful burning sensation, whereupon she was rushed to the hospital. The woman also stated that she believed she was pregnant and her purpose was to terminate her pregnancy. Two men were also questioned in connection with the case and their signed statements revealed that for the sum of $25.00 Linden had sold approximately two dozen bichloride of mercury tablets in a plain white envelope to one of the men. He then furnished the tablets to the other man, who had been dating the divorcee.

When Linden was first arranged before Hon. J. Jerome Plunkett in St. Paul Municipal Court on March 14th, 1963 he challenged the jurisdiction of the Court, his claim being that the person who signed the complaint did not have personal knowledge of the facts upon which the complaint was based. However, when the defendant did not prevail in his challenge he entered a plea of guilty as stated above. Linden, who has no training in medicine, holds no license to practice any form of healing in the State of Minnesota.

Minnesota State Board of Medical Examiners
J. P. Medelman, M.D., Secy.



vacancy

"The direct cost for caring for the mentally ill is $1.7 billion a year. Workers who become mentally ill lose over half a billion dollars in earnings each year.

*Staff in one mental hospital recently tried an experiment with 65 patients who had been confined for an average of 13 years. They practiced the best treatment methods now known and, within six months to a year, 37 of these patients were well enough to be discharged. Only eight of the discharged patients failed to hold the gains they had made for at least a year after they left the hospital."**

Hope now, where there was no hope. Drugs which help now, where there were no known drugs which helped—even five years ago. Independent drug research is continuing in this vital area. But, should it be discontinued because the cost must somehow be reflected in the ultimate price of the new drug—if it is to be discovered? Or should the sign read, as it has throughout time in overcrowded mental institutions: "NO VACANCIES."

*U.S. Department of Health, Education and Welfare, Public Health Service Publication No. 813.

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The Blue Shield

Lest we forget — and take it for granted, — Blue Shield of Minnesota has been with you for 15 years. So there is some history, progress and change to be reported and also used to jog the memory.

Blue Shield has as its purpose (as declared by the Legislature) to make possible a wider and more timely availability of medical care, thereby advancing the public health and the science and art of medicine in this State.

How Blue Shield has followed its primary purpose can best be shown by a review of what has occurred during the 15 years of activity:

At the end of the year 1947, Blue Shield of Minnesota began its first activity. Its program provided benefits for those services of doctors of medicine which created the greatest economic impact upon the family: surgery, in-hospital medical care and obstetrical services. Limited coverage was provided for diagnostic X-ray services and endoscopic services, but that which was included was consistent with the practice of medicine and believed adequate to encourage the subscriber to seek earlier care, thus eliminating the aggravation of a physical condition which might jeopardize the life and health of the patient. Certain phases of medicine had not progressed to the extent of general use today and thus were not included.

As Blue Shield prospered through gains in enrollment, monies paid in by subscribers provided a reserve, making the organization financially sound and — after meeting secure actuarial standards — additional monies over and above the necessary reserve strength were converted to greater subscriber coverage. The fee schedule was revised and the first major changes became effective in October, 1952, and the fee schedule was increased from $150 to a $200 schedule. Additional in-hospital medical days were added, increased anesthesia coverage, consultation services and changes in income limits were made. This use of the subscribers' money reflected an effort on the part of Blue Shield to provide a greater scope of coverage and a wider area of service benefits in order to offset the economic impact which challenged the family's financial condition.

As the science and art of medicine progressed, services which had previously been considered experimental and which were not of wide general use were developed to a curative stage and such procedures or services were added to the scope of coverage provided the subscriber, in 1954, 1955 and 1957. For example: X-ray, cobalt and isotope therapy for certain conditions such as proved malignancies; electroshock therapy in nervous and mental cases; broadened benefits for in-hospital medical care; and increased payments for various medical complications. These were added to the Blue Shield scope of coverage not only in maintaining the Blue Shield expansion to be consistent with the progress of the science and art of medicine, but in the interest of the public health.

During these years the country was faced with inflation, salaries and wages became higher but also the cost of living increased, off-setting any gains made in increased salaries or wages. Blue Shield of Minnesota recognized the inflationary trend and continued to upgrade the income limits of the contract in order that a greater number of the population could remain covered under the service benefits philosophy in which participating doctors accept the Blue Shield benefit as payment in full when the subscriber's income is less than the income limits stated in the contract. Plan B was added in 1954 and no further changes were made in the income limits in the contract until 1962. In this year the M-Series was offered to the public. Blue Shield of Minnesota in 1959 also met the national challenge for the care of the aged by introducing a quality Senior Citizen medical-surgical program.

What has caused the increased coverage for the Blue Shield subscribers has been the practical application of providing benefits consistent with the science and art of medicine which are in the best interests of the patient. The increased payments being made more commensurate with the doctor's charge for those who are eligible for service benefits reflect practical application of economic conditions in which the medical profession has long been interested.

A major development in Blue Shield was the addition of the diagnostic X-ray and laboratory out-of-hospital program. As the pre-payment plans were expanded, both non-profit and commercial, Blue Shield was first to give recognition to the fact that requiring hospitalization in order to obtain payment is a costly matter and increases the over-all health care costs. Subscribers became well aware of the limitations and insisted upon hospitalization in order to obtain benefits for diagnostic services. Again referral to the progress in the science and art of medicine indicates that as the diagnostic X-ray and diagnostic pathologic field developed, doctors of medicine were better able to do more procedures of this nature in their offices but no coverage existed for these services unless the patient was hospitalized. Since hospitalization not only provided coverage for these services but also added the cost of the room, board and general duty nursing care, the health care costs rose rapidly. Then Blue Shield developed its diagnostic program in the best interests of the public, in the best interests of the profession, in order to reduce the over-all health care costs. Naturally, the cost of Blue Shield was adjusted to cover the additional benefits. This not

Continued

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As an instrument of the voluntary practice of medicine in the United States, Blue Shield has an honorable heritage.
Blue Shield has only one function. To preserve this heritage and to help doctors protect their patients.

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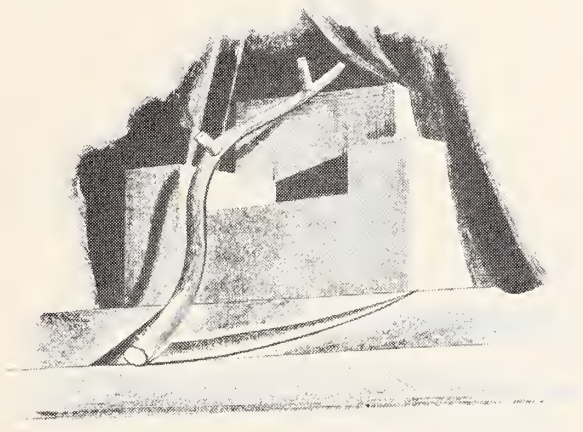
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only was done in the interests of the public and profession, and the health care cost problem but was an answer to management and labor's challenge for a program which would reduce absenteeism and unnecessary hospitalization.

Blue Shield's years of work in the development of a quality contract containing a broad scope of coverage had several objectives. First, the interest of the health of the public with a plan conceived to reduce the economic impact on the family. Secondly, the reduction in the health care costs by eliminating unnecessary hospitalization. The medical profession was considered in relation to its continued development and refinement of the science and art of medicine.

This, then, is briefly the history of the growth or broadening of the Blue Shield scope of coverage, the benefits and the reasons behind it. How it has served can be considered only in relation to its known purpose: "To make possible a wider and more timely availability of medical care, thereby advancing the public health and the science and art of medicine in this State."



In Memoriam

DANIEL W. WHEELER

Dr. Daniel W. Wheeler, 68, retired Duluth physician, died April 8th after several years of illness.

Dr. Wheeler was born at Casey, Iowa and received his degree in medicine from Rush Medical College in Chicago. He had an outstanding record in the Navy medical corps in World War II and was cited for bravery for his heroism on Okinawa. He had been president of the St. Louis County Medical Society, the Minnesota Society of Internal Medicine and the Minnesota Society for Study of Heart and Blood Vessel Diseases.

He was a member of the Minnesota Society of Internal Medicine, a fellow of the American College of Physicians, charter member and fellow of the American College of Chest Physicians, certified by the American Board of Internal Medicine, member of the St. Louis County Medical Society, Minnesota State Medical Association and American Medical Association. He served as chief of staff of St. Mary's, St. Luke's and Miller Memorial hospitals in Duluth.

Dr. Wheeler was a member of the Chamber of Commerce, Scottish Rite Masons and Aad Temple of the Shrine and a past president of the Duluth Lions Club.

He is survived by his daughter and a son.

JOHN WEBSTER RAATAMA

Dr. John Webster Raatama, 51, Keewatin practitioner, died May 5th. He was born at Nashwauk and received his degree in medicine from the University of Minnesota.

He was associated with the Adams Clinic at the Nashwauk-Keewatin offices, and was a member of the Minnesota Acadamy of General Practice, Chief of Staff of the Hibbing General Hospital in 1960, member of the Masonic Lodge No. 331, member of the Iron Range Lodge of Perfection and member of the Aad Temple Shriners of Duluth. He was also a member of the Hibbing Elks Lodge No. 1022, Lions Club, Nashwauk Chamber of Commerce, American Legion Post No. 307, American Medical Association, Range Medical Society and the Minnesota State Medical Association.

PERCY T. WATSON

Dr. Percy T. Watson, 82, former official of the Minnesota Department of Health, died April 21st in Miami, Florida.

Born in Northfield, Dr. Watson received his degree in medicine from the John Hopkins medical school. He was at one time a medical missionary in Fenchow, Shansi, China. He was a member of the American Medical Association, Upper Mississippi Medical Society, and the Minnesota State Medical Association.

He is survived by his wife, one son Dr. P. T. Watson of St. Paul, and three daughters, one of whom is Dr. R. Janet Watson of Brooklyn.

Question:

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Answer:

"A drug that is both a tranquilizer and a muscle relaxant."

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References: 1. A.M.A. Council on Drugs: J.A.M.A. 183:469 (Feb. 9) 1963. 2. Gruenberg, F.: Curr. Ther. Res. 2:1 (Jan.) 1960.

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Meetings And Announcements

JUNE

AMA Annual Meeting, June 16-20, Convention Hall, Atlantic City. Contact: AMA, Chicago.

INTERNATIONAL Congress on Education of the Deaf, Gallaudet College, Washington 2, D.C., June 22-28. Write: Executive Secretary; Gallaudet College, Washington D.C.

Society of Nuclear Medicine 10th Annual Meeting, Queen Elizabeth Hotel, Montreal, Canada, June 26-29. Write: Samuel Turiel; 333 N. Michigan Ave.; Chicago.

Second International Congress on Medical Librarianship, June 16-22; Washingotn, D.C. Write: Ruth Mac Donald; National Library of Medicine; Bethesda, Maryland.

Academy of Psychosomatic Medicine Second Symposium on "Anxiety and Depression," Marlborough Blenheim Hotel; Atlantic City, N. J. June 15-16. Contact: Wilfred Dorfman, M.D.; 1921 Newkirk Avenue; Brooklyn, New York.

AMA Multiple Discipline Research Forum June 18-20; Atlantic City. Contact: AMA, Chicago.

JULY

Summer Camp for Diabetic Children, July 14-August 4, Holiday Home, Lake Geneva, Wisconsin. Contact: Diabetes Association; 620 North Michigan; Chicago.

Fifth International Conference on Medical Electronics, July 22-26. Liege, Belgium. Contact: F. Bostem, M.D.; 23 Boulevard Frere Orban; Liege, Belgium.

Fifth International Postgraduate Course in Reconstructive Surgery; July 14-27, University of Leiden, The Netherlands. Write: Prof. Dr. H.A.E. van Di-shoeck; University of Leiden; Academisch Ziekenhuis, Leiden; The Netherlands or American Rhinologic Society in Chicago.

Second International Conference on Congenital Malformations July 15-19, Americana Hotel, New York Write: National Foundation; 800 Second Avenue; New York.

17th Annual Rocky Mountain Cancer Conference, July 12-13, Brown Palace Hotel, Denver, Colorado. Write: Rocky Mountain Concer Conference; 1809 E. 18th Avenue; Denver, Colorado.

University of Colorado Postgraduate Course on Ophthalmology, June 30-July 5, Colorado Spring, Colorado. Course on Obstetrics and Gynecology July 8-10 and one on Dermatology July 18-20. Contact: University.

AUGUST

American Academy of Physical Medicine and Rehabilitation Annual Meeting, August 26, at the Sheraton-Dallas Hotel, Dallas, Texas. Contact: Academy, 30 No. Michigan Ave., Chicago.

University of Colorado Postgraduate Course on Pediatrics August 5-9 and Medical Audiology Workshop August 19-23, Denver, Colorado. Contact: University.

ANNOUNCEMENTS

American College of Physicians Postgraduate Courses: June 24-28— "The Psychosomatic Illness," University of Colorado, Denver, Colorado. Contact: Edward Rosenow, M.D., American College of Physicians; 4200 Pine Street; Philadelphia.

* * *

National Medical Foundation for Eye Care Third Annual Helmholtz Memorial Award for the author of finest article or essay on eye care published in the period August 31, 1962 to August 31, 1963. Entries must be submitted to office of the Foundation not later than September 30, 1963. Address: 250 West 57th St., New York 19, N. Y.

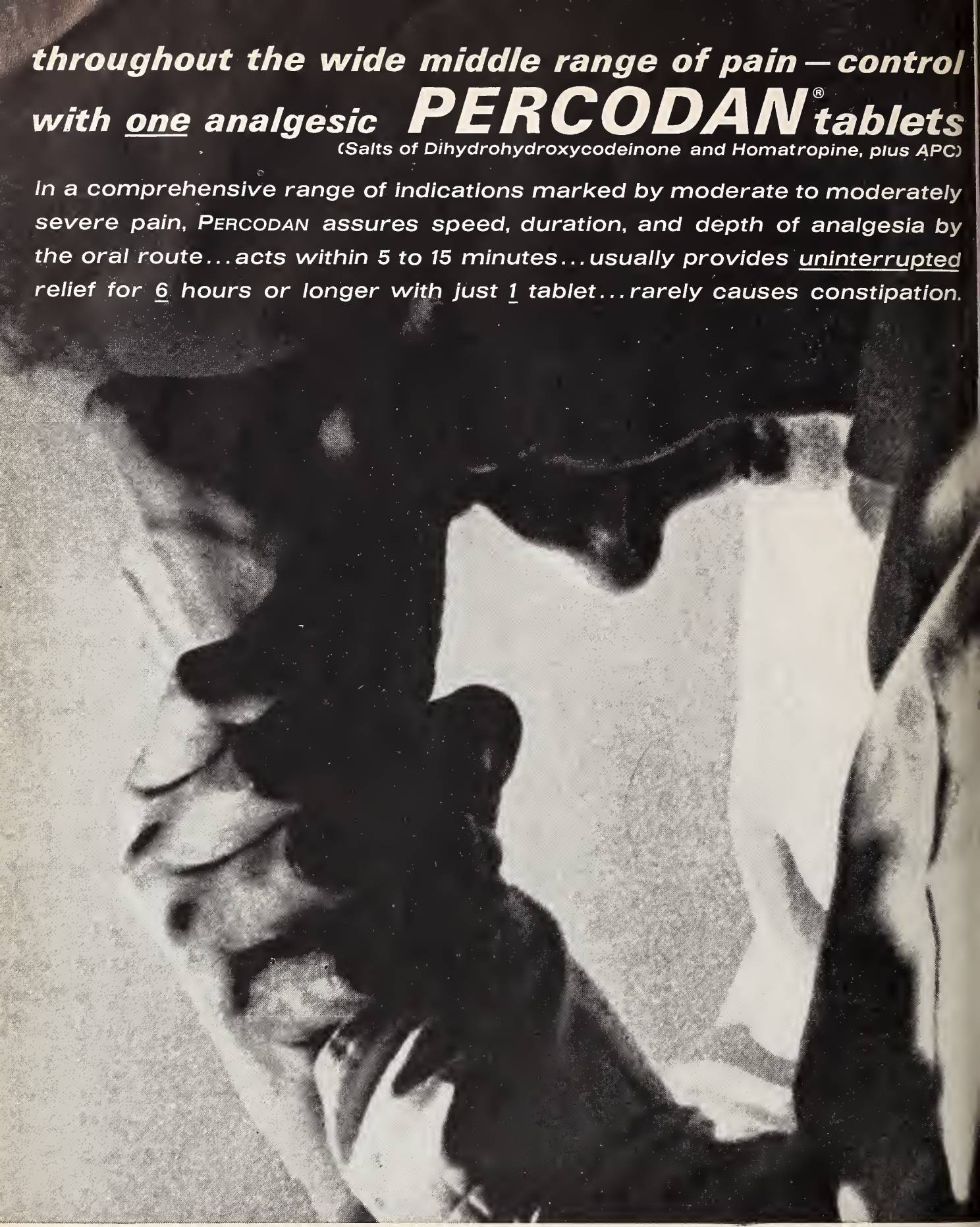
* * *

Applications for certification in the American Board of Obstetrics and Gynecology must be submitted by July 1, accompanied by current duplicate lists of patient dismissals for preceding twelve months. Contact: Robert Faulkner, M.D., American Board of Obstetrics and Gynecology; 2105 Adelbert Road; Cleveland.

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Physician's Diary

Doctors Jack Bloch, Paul E. Strandjord, Lorraine M. Gonyea, Theodore B. Grage of the University of Minnesota Medical School and **Dr. H. David Root** of Ancker Hospital together with four medical school students received research grants and stipends from the Minnesota Medical Foundation this month.

* * *

Dr. C. W. Moberg of Detroit Lakes was re-elected president of Blue Shield of Minnesota. Other officers re-elected are: **Drs. P. G. Hoeper** of Mankato, Vice President; O. I. Sohlberg of St. Paul, Secretary; and E. C. Bayley of Lake City, Treasurer.

* * *

Doctors William C. Luft and **Edmond J. Yunis** of the University of Minnesota Hospitals and **Doctors William B. Carpenter** and **Elias N. Manoles** of the Mayo Clinic passed the semi-annual examinations held this spring for certification as Diplomates in pathology.

* * *

Doctors John B. O'Leary of Brainerd, **James B. Carey Jr.,** of Minneapolis and **Harold G. Muchmore** of St. Paul were elected as fellows by the American College of Physicians. Selected as associates were: **Dr. Albert J. Greenberg** of Minneapolis and **Dr. Donald B. Swenson** of St. Paul.

* * *

Doctor Katherine A. Nye, a St. Paul woman physician, has been given the first life membership to be awarded in the United States to a member of the Academy of General Practice. The presentation was made at the recent national meeting in Chicago.

* * *

At the spring meeting of the Minnesota State Psychiatric Society the following officers were elected: **Burtrum C. Schiele, M.D.,** President; **Richard M. Steinhilber, M.D.,** president-elect; **Donald R. Daggett, M.D.,** secretary-treasurer; and **David A. Boyd Jr., M.D.,** representative to APA.

* * *

Dr. Haddon M. Carryer, head of a diagnostic section of medicine at Mayo Clinic and former president of the Minnesota State Medical Association received a distinguished service award from Drake University in May.

Dr. C. Walton Lillehei, Minneapolis heart specialist, will be part of a team of top medical educators to go to South America to teach advances in medicine.

* * *

Dr. James Barr has left Elmore to take a medical position with the federal government . . . **Dr. Tom Hegstad** joined **Doctors Homer** and **Harold Basinger** in Windom . . . **Drs. Bloedel** and **Ransom** of the Osseo Clinic announced the association with them of **Drs. Hauge, Jacobson, Frys, Peterson** and **Massee.**

* * *

Dr. J. Gordon Millichap of the Mayo Clinic will leave the Clinic to become a professor of neurology and pediatrics in the Northwestern University Medical School and neurologist and head of the division of pediatric neurology at the Children's Memorial Hospital in Chicago.

* * *

Dr. Robert R. Kierland, head of the section of Dermatology of the Mayo Clinic was elected secretary of the American Dermatological Association in April.

* * *

Dr. Don R. Mathieson, Mayo, has been in seven European countries visiting ten blood transfusion services, and **Dr. Gershom J. Thompson** consultant in urology at the Clinic has been in England, Ireland and Scotland visiting medical centers.

* * *

Dr. Owen Wangensteen of the University Hospitals delivered the 22nd Annual Charles Chapen Oration before the Rhode Island Medical Society in May. His subject was "Gastric Cooling and Freezing for Peptic Ulcer."

* * *

An open house for **Dr. W. G. Workman** of Tracy honoring his 50 years in medical practice will be held June 30th, 2:00 P.M. to 5:00 P.M. in the reception room of the Clinic Office (downtown Masonic Building). Everyone is invited to make this a long to be remembered day for Dr. Workman.

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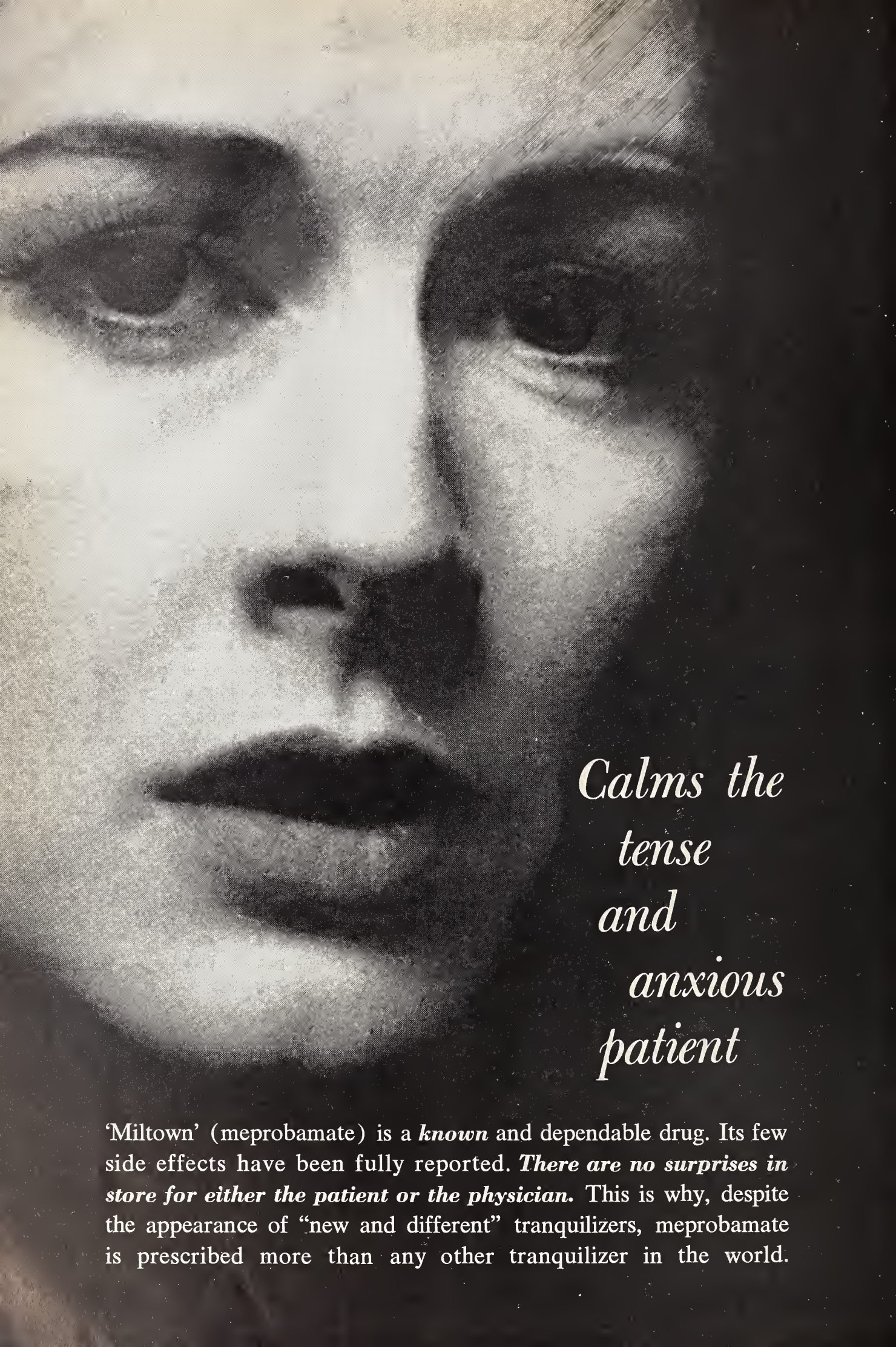
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Bibliography: 1. Williams, R. H.: Textbook of Endocrinology, Ed. 3, Saunders, Philadelphia, 1962, p. 610. 2. Gordon, E. S.: Metabolism 11:819, 1962. 3. Grodsky, G. M. et al.: Metabolism 12:278, 1963. 4. Sadow, H. S.: Metabolism 12:333, 1963. 5. West, K. M. and Tophoj, E.: Metabolism 10:689, 1961. 6. Yalow, R. S. and Berson, S. A.: Diabetes 9:254, 1960. 7. Weller, C. et al.: Scientific Exhibit, A.M.A., June 1962. 8. Weller, C. et al.: Metabolism 11:1134, 1962. 9. Radding, R. S. et al.: Metabolism 11:404, 1962.

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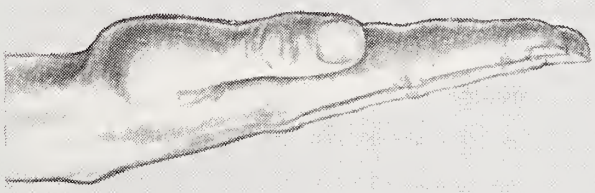




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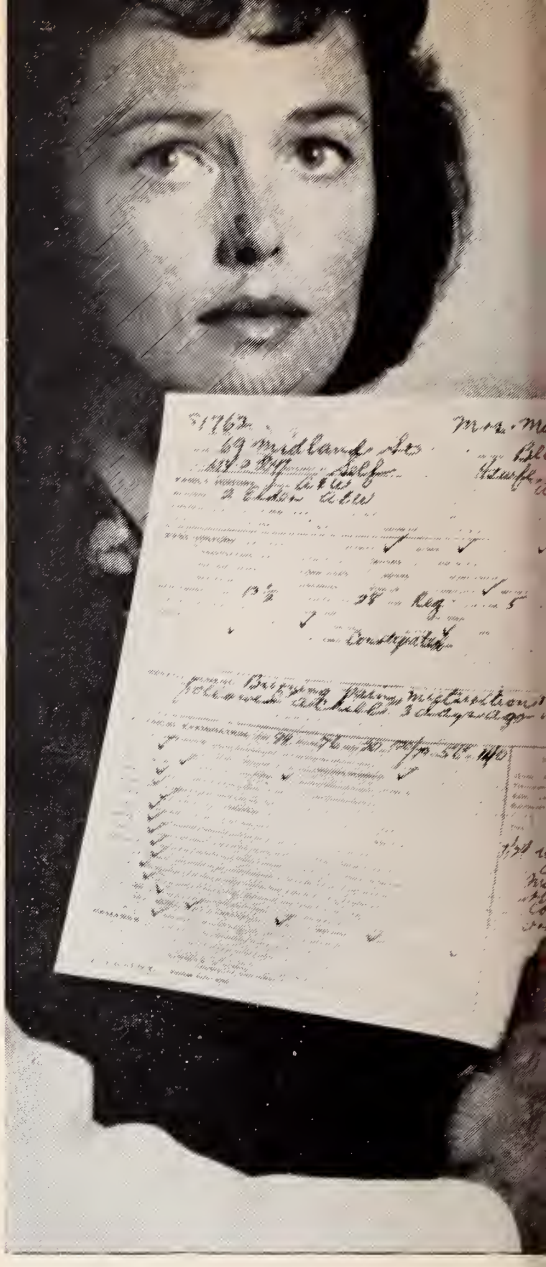
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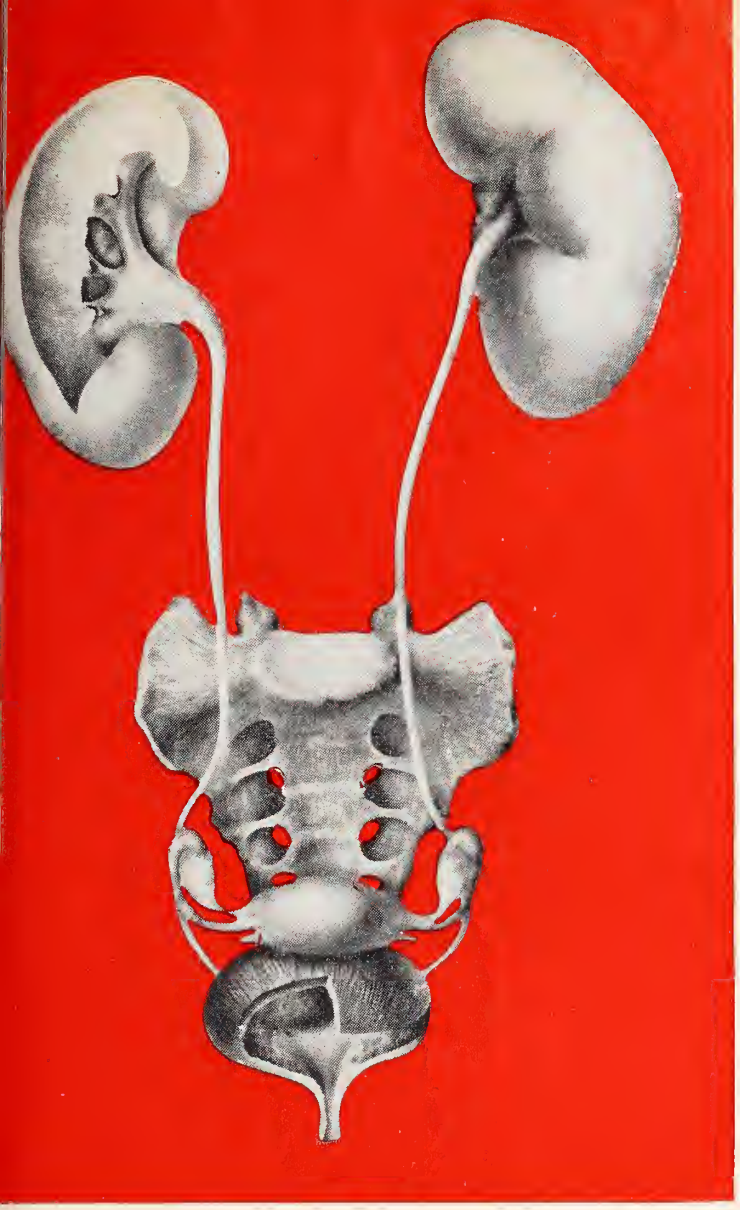


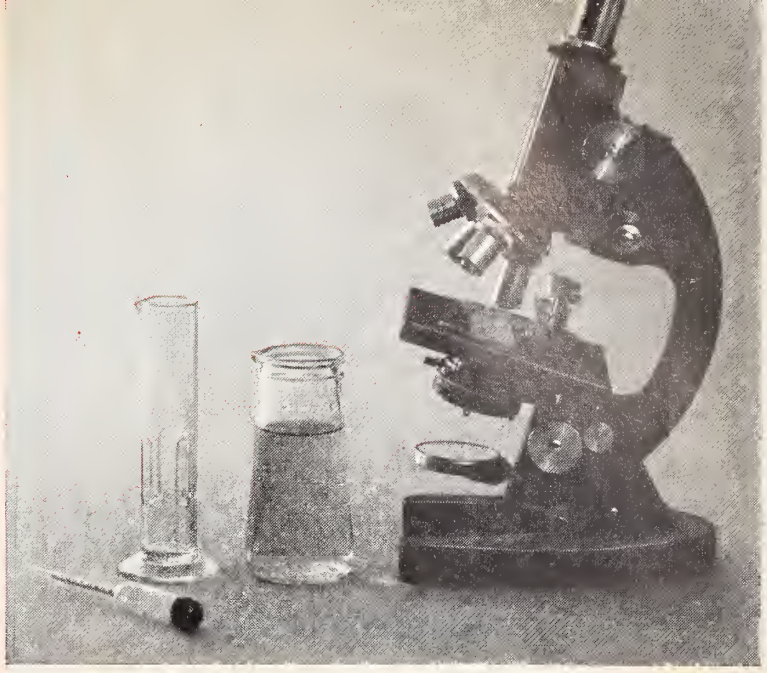
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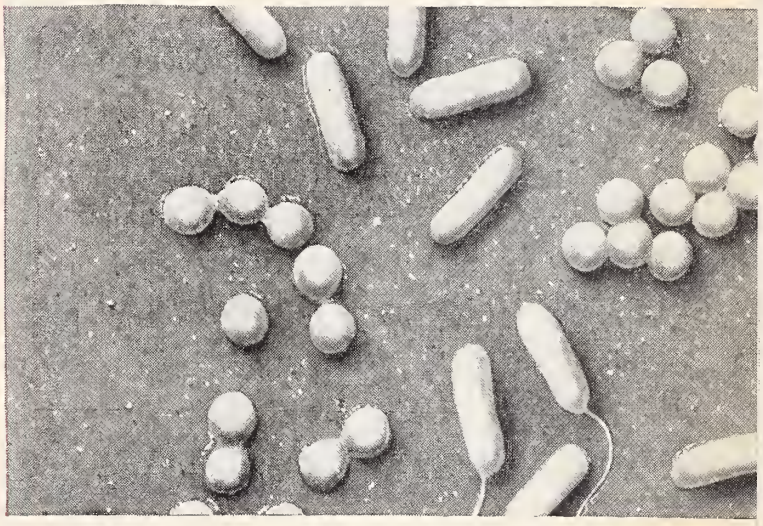


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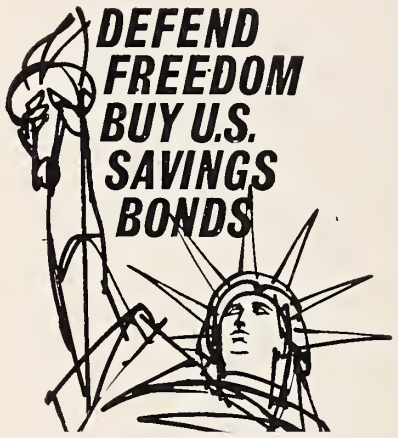
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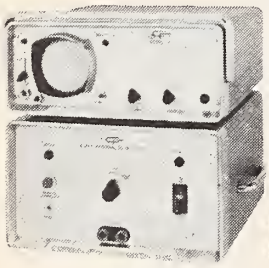


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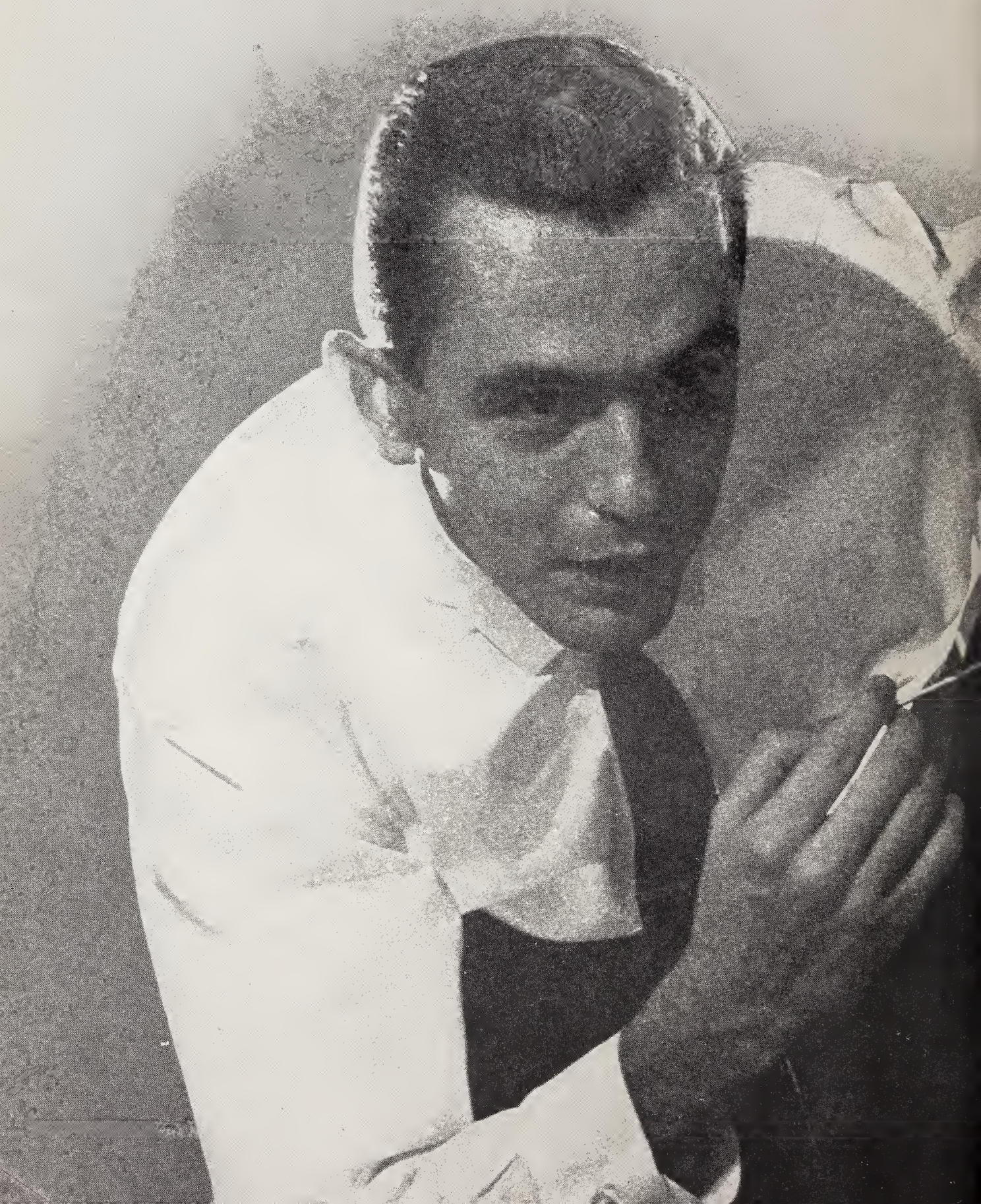
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REFERENCES: (1) Hammill, J. F.: J. Chron. Dis. 8:448, 1958. (2) Roseman, E.: Neurology 11:912, 1961. (3) Bray, P. F.: Pediatrics 23:151, 1959. (4) Chao, D. H.; Druckman, R., & Kellaway, P.: Convulsive Disorders of Children, Philadelphia, W. B. Saunders Company, 1958, p. 120. (5) Crawley, J. W.: M. Clin. North America 42:317, 1958. (6) Livingston, S.: The Diagnosis and Treatment of Convulsive Disorders in Children, Springfield, Ill., Charles C Thomas, 1954, p. 190. (7) Ibid.: Postgrad. Med. 20:584, 1956. (8) Merritt, H. H.: Brit. M. J. 1:666, 1958. (9) Carter, C. H.: Arch. Neurol & Psychiat. 79:136, 1958. (10) Thomas, M. H., in Green, J. R., & Steelman, H. F.: Epileptic Seizures, Baltimore, The Williams & Wilkins Company, 1956, pp. 37-48. (11) Goodman, L. S., & Gilman, A.: The Pharmacological Basis of Therapeutics, ed. 2, New York, The Macmillan Company, 1955, p. 187.

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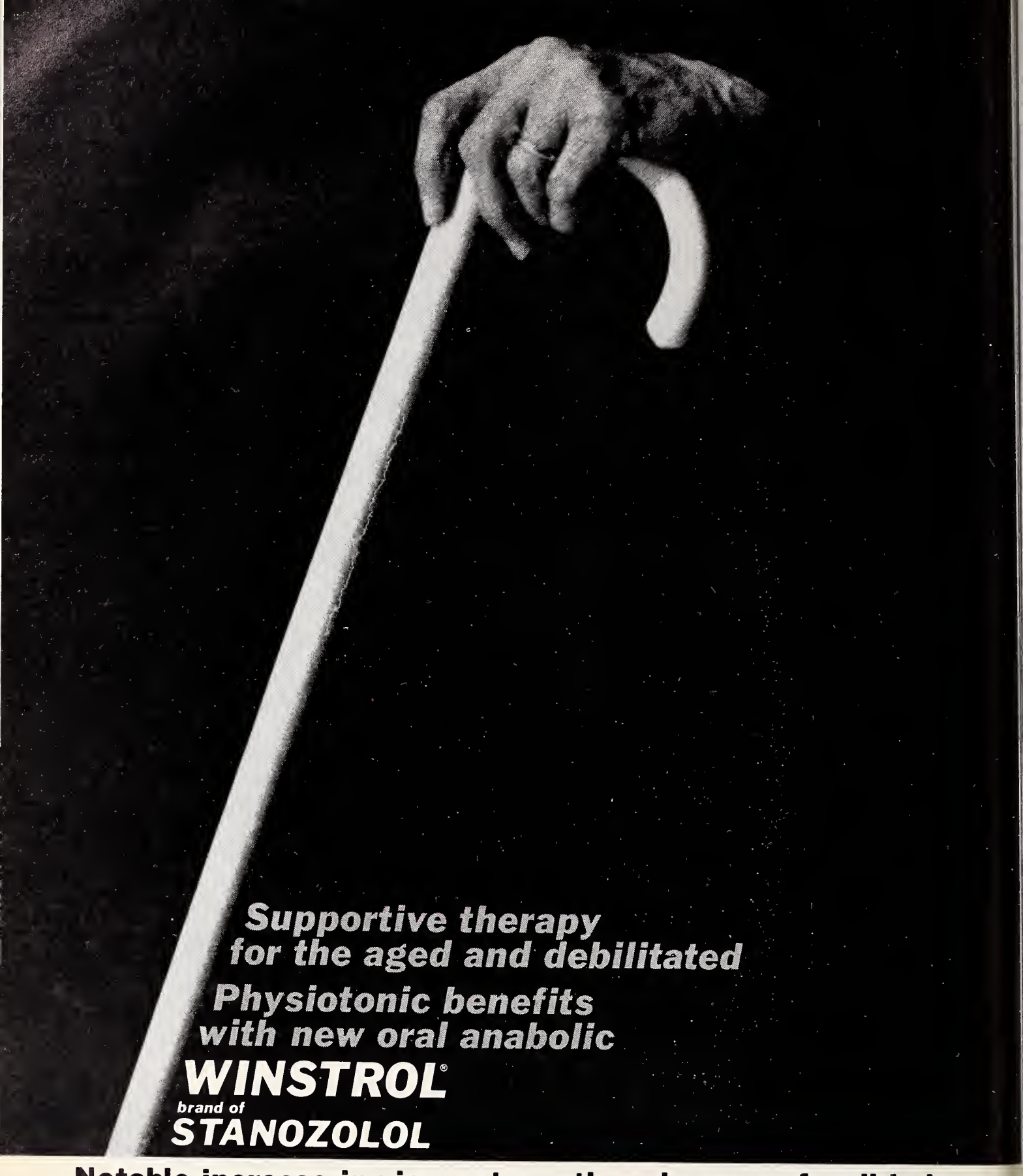
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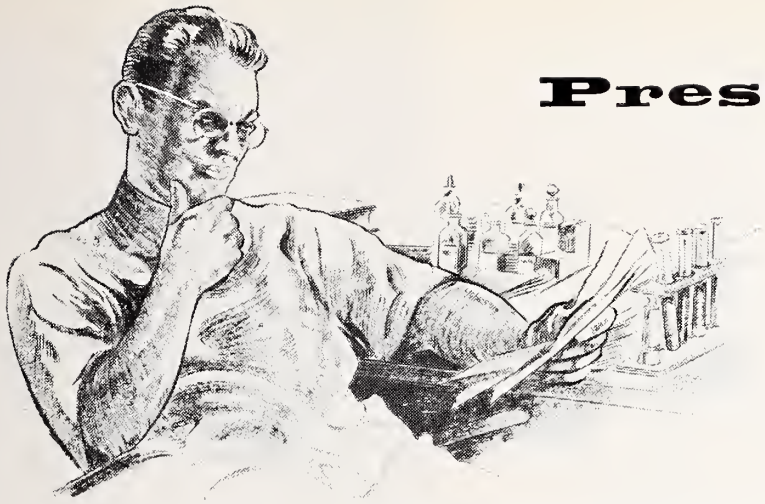
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President's Letter

The Annual Meeting 1963

In the opinion of many who either spoke to me at the meeting or from whom I have heard subsequently, the annual meeting, May 20-22, at Duluth was an unqualified success.

The scientific sessions were well attended. Many of the speakers spoke of the interest of those in the audience. This was also true of the Round Table Discussions held at the noon luncheons.

In the sessions of the House of Delegates the procedure used in previous years of referring resolutions to appropriate Reference Committees for consideration and recommendation was again followed very successfully. This procedure gives unlimited opportunity for everyone interested to discuss resolutions before the appropriate Reference Committee and also brings before the full session of the House of Delegates for final action the considered opinion and recommendation of the Reference Committee.

The policy of distributing all reports of officers and committees to the delegates prior to the meeting and of limiting personal reports to those of the President and Chairman of the Council was again followed as in previous years. This procedure gives full information to all the delegates but conserves the time previously taken up by verbal presentations.

The scientific exhibits as well as the commercial exhibits were well attended and the commercial exhibitors expressed themselves as unusually pleased by the interest displayed by those in attendance.

The banquet on Tuesday night was attended by such a number that the capacity of the banquet room was completely utilized and additional tables had to be placed in the entry. The program was high lighted by the presentation of certificates denoting 50 years of medical service to 25 of our members of whom 12 were present and received their awards in person.

The Distinguished Service Award was presented to Dr. Charles W. Mayo and accepted for him in his absence by his son, Dr. Charles H. Mayo II.

The award of the Southern Minnesota Medical Society for the outstanding scientific exhibit was presented to Dr. J. C. O'Neill, Dr. W. J. Slack and Dr. K. R. Fawcett of the Duluth Clinic for their exhibit entitled "Eyeballs et al." The award was accepted in behalf of those presenting the exhibit by Dr. Frederic T. Becker of Duluth.

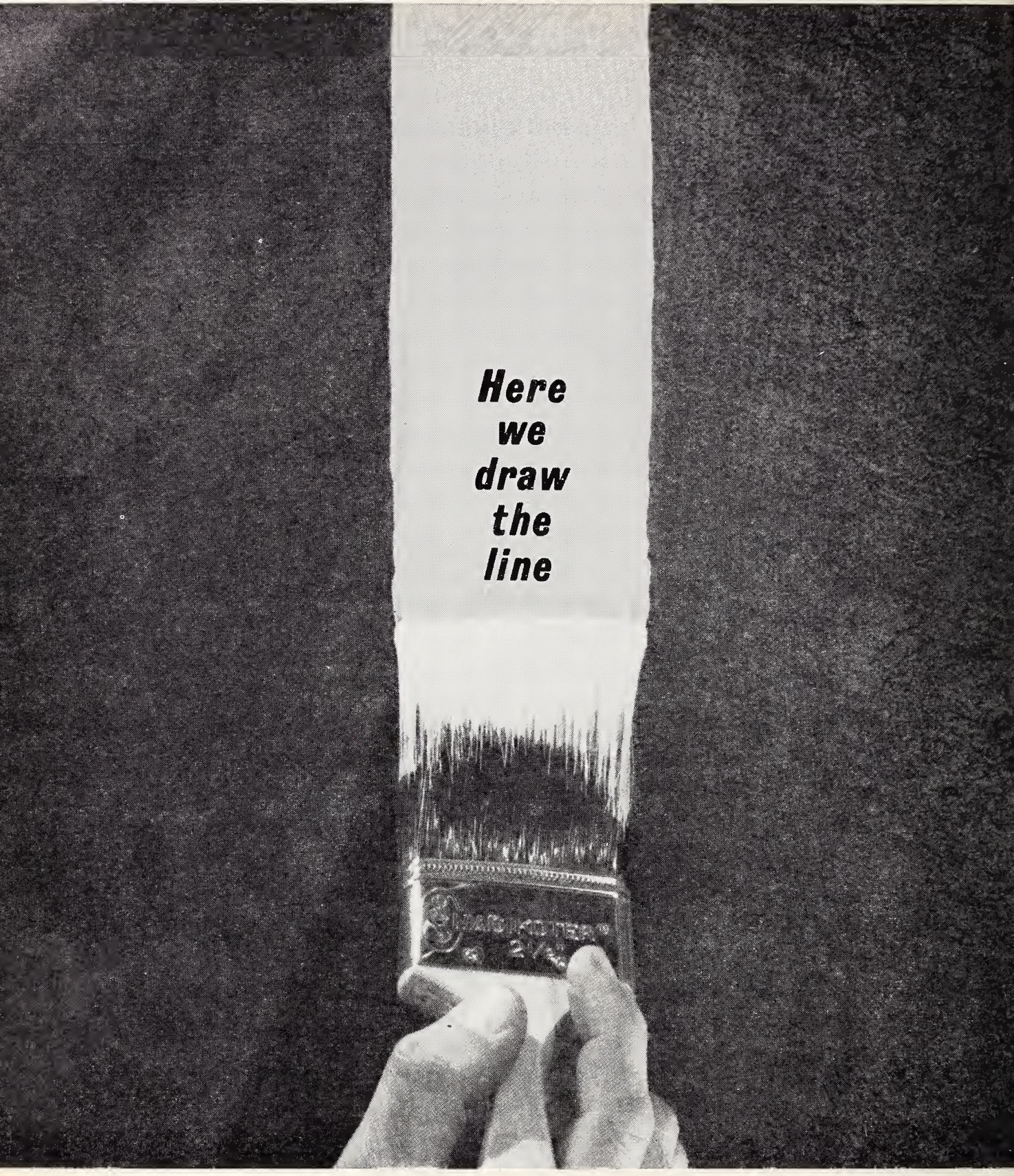
Following the presentation of these awards we were treated to an outstanding program of entertainment provided by our hosts, the St. Louis County Medical Society and the Range Medical Society.

In summary, all activities of the annual meeting were outstandingly successful. This result was achieved through the combined efforts of all of the various committees who participated in the planning for the meeting and the untiring efforts of the staff of our State Association office.

In behalf of all of our members I extend our sincere appreciation to all of the committee members and the office staff who made this excellent meeting possible.

Donald McCarthy

Minnesota State Medical Association
Donald McCarthy, M.D.
President



We like visitors. We like to show them our modern equipment and latest research facilities, our exacting manufacturing techniques and unexcelled quality standards. Up to a point, that is. A white line provides the barrier that discourages further exploration. It means look but don't cross. It is a safeguard against inadvertent mishandling or misplacing of products—another precaution in an endless list of rules contributing immeasurably to the quality of the finished product.

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EARLY, CARCINOMA of the CERVIX: Cytology and Pathology *

In a well done study three-fourths of all patients biopsied for possible cancer of the cervix had the disease. Cytologic screening is an excellent survey technique when specimens are obtained from the squamo-columnar junction with a spatula. In every 1000 women so screened preclinical carcinoma will be found in seven.

EDWARD H. SOULE, M.D.**
Rochester, Minn.

IT HAS BEEN estimated that more than 14,000 women die annually in the United States from carcinoma of the cervix. In the female this condition is second in frequency only to carcinoma of the breast, and in the general population it is surpassed only by carcinoma of the breast and stomach. During the years 1945 through 1949, 1150 cases of carcinoma of the uterine cervix were seen at the Mayo Clinic, eighty-nine of which were adjudged to involve in situ lesions. During the years 1955 through 1959, 1550 cases of carcinoma of the cervix were seen; of this number, 803 were found to be in situ rather than infiltrating. The ninefold increase in the number of cases of preclinical carcinoma may be attributed primarily to the extensive use of the screening smear. It is our belief that all women, regardless of age, who are eligible for a pelvic examination, should have a screening smear made from the cervix.

Exfoliative Cytology

The rationale of exfoliative cytology is based on the desquamation of viable cancer cells from malignant tumors having a free surface. When the situation allows use of reliable technics for adequate sampling of desquamated cells and the organ is sufficiently accessible to permit histologic examination of the area in question, cytologic screening of asymptomatic individuals is a practical procedure.

*Part of a Symposium on Early Carcinoma of the Cervix presented at the meeting of the Minnesota State Medical Association, Minneapolis, May 22, 1962.
**Section of Surgical Pathology, Mayo Clinic.

Preclinical Carcinoma

The most successful area of application of the cytologic technic in the detection of preclinical carcinoma is the uterine cervix. This is true because of the ease with which satisfactory material for cytologic examination can be obtained as well as the relative accessibility of the uterine cervix to complete biopsy procedures. The application of a few specific rules, as outlined by Dr. McKenzie, enables any practicing physician to readily institute a screening program for his patients for the detection of asymptomatic carcinoma of the uterine cervix.

Approximately 60 per cent of all uterine carcinomas arise in the cervix; nearly 95 per cent of carcinomas arising in the cervix are of the undifferentiated squamous cell type, and practically 100 per cent of these carcinomas originate at the junction of the squamous and columnar epithelium. Because of these singular characteristics, the use of the spatula to sample the surface cells at the junctional zone is highly recommended. It has been our experience, as well as that of many other investigators, that cervical scrapings are far superior to preparations from the vaginal pool. The detection of early asymptomatic carcinoma of the endometrium by cytologic means from material taken from the vaginal pool has been disappointing and, in our opinion, is not worth the time and money required. Control studies have indicated that between 20 and 30 per cent of preclinical carcinomas of the cervix will not be detected by the use of these preparations.

Primary Screening Smears

At the Mayo Clinic from 1948 through 1960, 161,694 primary screening smears were made. The detection of preclinical carcinoma in this group was 6.8 per 1000 women screened (Table 1). These preclinical carcinomas were found in cervices that were adjudged on clinical examination to be normal or to exhibit a benign lesion. Patients with preclinical carcinoma that was discovered by a smear before they came to the clinic were deleted from the present group in order to remove the element of selectivity from our series. The number of women coming to the clinic because of abnormal cervical smear that has led to the diagnosis of preclinical carcinoma has increased steadily during the past few years — from 12 in 1955 to 68 in 1961. This is obviously a reflection of the number of cervical smears that are being taken in the area population and indicates that a growing segment of the clinic population is being screened prior to registration.

TABLE 1

DETECTION OF PRECLINICAL CARCINOMA

(1948-1960): INITIAL CERVICAL SMEAR

Period	Initial smear, no.	Carcinoma found, no.	Rate per 1000 women
1948-1957	90,257	678	7.5
1958	24,956	157	6.3
1959	24,290	152	6.3
1960	22,191	116	5.2
Total	161,694	1103	6.8

Detection Rate

During this 13-year period, 1103 preclinical carcinomas of the uterine cervix were discovered; 107 (9.7 per cent) of these lesions exhibited unequivocal microscopic evidence of stromal infiltration at the time of cervical cone biopsy. In a group of nearly 30,000 women who have had a single repeat screening smear one or more years after the initial screening smear, our detection rate of preclinical carcinoma has been two per 1000 women screened. Some of these repeat smears have been done as long as 9 years after the initial smear. It is our opinion that this reduced detection rate in the previously screened group indicates that the lesion we are detecting is significant and not some equivocal change found in the cervical epithelium.

Classification

We classify the results of smears into five groups or classes, ranging from negative, or group 1, to malignant cells present, or group 5. Group 2 cells are considered to be slightly atypical, benign epithelial cells, while suspicious cells and probably malignant cells compose the important groups 3 and 4, respectively. Microscopic examination of satisfactory tissue removed

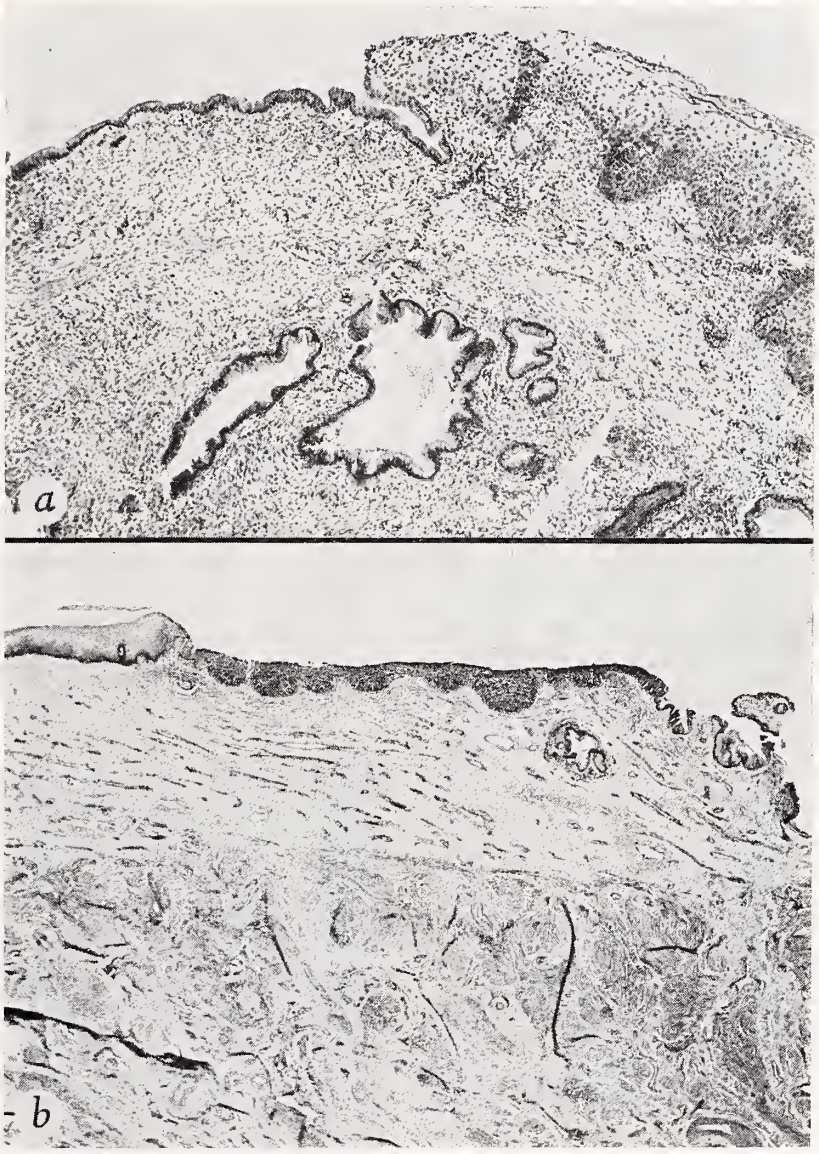


Fig. 1. **a.** Normal squamocolumnar junction of cervix. Intact epithelium is needed for accurate diagnosis (hematoxylin and eosin; x40).

Fig. **b.** Focus of squamous cell carcinoma "in situ" at squamocolumnar junction (hematoxylin and eosin; x17).

for biopsy verified the diagnosis of carcinoma in 99 per cent of our patients with group 5 smears, in 86 per cent with group 4 smears, and in 51 per cent with group 3 smears (Table 2). Histologic examination of the intraepithelial carcinomas revealed areas of atypia or dysplasia in adjacent epithelium in more than half of the cases. In some instances the only dysplastic cells were present on the surface of the epithelium, resulting in a smear with only atypical class 3 cells. Because of these dysplastic changes in association with in situ carcinoma, it is imperative that the smears be classified in such a way as to indicate the likelihood that carcinoma is present.

Biopsy Procedure

We have found carcinoma in about 75 per cent of all patients who have had tissue taken for biopsy. During the early formative years of our smear program, the gynecologists attempted quadrant punch biopsies after the use of the Schiller test. Since virtually all cervical carcinomas develop at the junctional zone, it is essential that the entire area be included in the biopsy (Fig. 1a and b).

Cold-Knife Cone

In many instances a small os renders punch biopsy difficult, or the orientation of tissues is

TABLE 2

COMPARISON OF RESULTS OF INITIAL SMEARS AND BIOPSY IN SAME CASES (1953-1960)

Initial smears		Results of satisfactory biopsy		
		Carcinoma found		Carcinoma not found,
Group	No.	No.	Per cent*	No.
5	456	425	99	2
4	354	281	86	44
3	660	294	51	273
2	28	5	—	14
1	140,055	29	—	—

*Percentage based on total number of initial smears minus unexplained group.

not completely satisfactory from the standpoint of the pathologist; in an appreciable number of cases it is impossible by this method of biopsy to establish the source of the atypical cells seen in the smear. Since the epithelium is easily denuded around the junctional zone, a subsequent conizing biopsy of the cervix may fail to reveal the source of the cells in these punch-biopsy failures. For this reason, the "cold-knife" conizing biopsy (Fig. 2) is the most satisfactory means of performing a thorough circumferential study of the junctional zone. For the past five years, practically all of our patients have been investigated with the "cold-knife" conizing biopsy procedure, done with the patient under general anesthesia in the operating room. It is imperative that the surgeon treat the cervix with care so as to preserve all of the surface epithelium. Special care in the preparation of the cervix prior to the surgical conization, in placing the tenaculum, and in delineating the junctional zone with an iodine solution are all prerequisities for a successful biopsy.



Fig. 2. Cold-knife cone of cervix.

Fresh-Frozen Section

It is highly desirable to utilize the fresh-frozen-section technic in examining the cervical cone. In our laboratory the cone is carefully opened at the 12 o'clock position, and suitable sections are taken from the junctional zone, which is identified by the use of Lugol's solution. When practicable, the cone is cut into 12 blocks (Fig. 3), and the sections are then made. Under these circumstances we have been able to detect more than 98 per cent of the carcinomas in situ while the patient is still on the operating table, thus enabling the surgeon to carry out a definitive procedure after a delay of only 10 to 15 minutes.

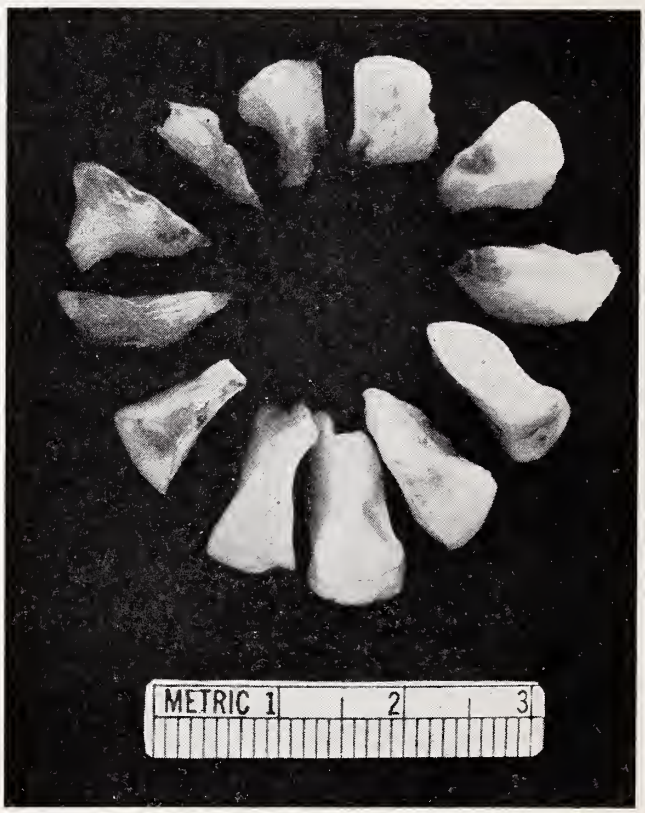


Fig. 3. Twelve radial tissue blocks cut from cervical cone in preparation for frozen-tissue section.

The tops and bottoms of the tissue blocks are then embedded in paraffin, and permanent sections are made of 24 blocks. This method has proved entirely satisfactory for detecting areas of stromal invasion. In addition, it allows us to evaluate the epithelium at the base of the cone and to detect extension of the carcinoma onto the portion of the cervix or the vaginal cuff; it also allows us to evaluate the apex of the cone for extension up the endocervical canal. These two observations are of distinct benefit to the patient, inasmuch as they assure the surgeon that there is no extension of the carcinoma beyond the field of definitive surgery, whether he has elected to treat the patient with conization or simple hysterectomy.

Summary and Conclusions

The detection of preclinical carcinoma of the uterine cervix requires close co-operation between the practitioner, the surgeon, and the pathologist. Properly obtained cervical smears that are carefully screened and evaluated will lead to the detection of approximately seven preclinical carcinomas in every 1000 women subjected to an initial screening smear. Extreme care is needed in obtaining a cone biopsy from the squamocolumnar junction and in preserving the surface epithelium at the time of biopsy. The pathologist's role in preferential handling of such material, and the use of the fresh-frozen section contribute immeasurably to the care of the patient and to assuring complete removal of the carcinoma. It is advantageous to make the pathologist responsible for both the cytologic diagnosis and the tissue diagnosis, in order that correlation may be made and statistical data accumulated. Infiltrating carcinoma was encountered in approximately 10 per cent of all preclinical carcinomas detected by cervical smear at the Mayo Clinic.

FIBROSITIS SYNDROME

This is a rather broad, nonspecific set of symptoms involing the muscles of their ligamentous attachments. There is spasm, pain, and stiffness of the muscles with tenderness and limitation of motion occurring after moderate periods of inactivity or after prolonged activity. This usually affects the lower back, the gluteal region, the cervical area, the shoulders, and the upper thoracic region. The onset may be sudden or insidious, acute, subacute, or chronic. It may be intramuscular, periarticular, fascial, bursal, or perineural in origin. Factors which accentuate these symptoms may be trauma, infection, dampness, drafts, cold, postural factors, and emotional upsets. Trigger areas of discomfort indicate specific areas of reference.

The paucity of specific etiologic factors and the absence of pathologic findings raise the question as to whether or not this term comprises a diseased entity. Many patients undoubtedly have a large psychosomatic factor, especially those emotionally unstable individuals who react with exaggerated response both mentally and physically, causing aching muscles, soreness, tenderness, and local trigger points.

Physical activities to the point of fatigue usually alleviate the symptoms. Treatment includes physical therapy, psychotherapy, and the use of corticosteroids.

He that outlives a wife whom he has long loved, sees himself disjoined from the only mind that has the same hopes, and fears, and interests; from the only companion with whom he has shared much good and evil; and with whom he could set his mind at liberty to retrace the past or anticipate the future. — Samuel Johnson

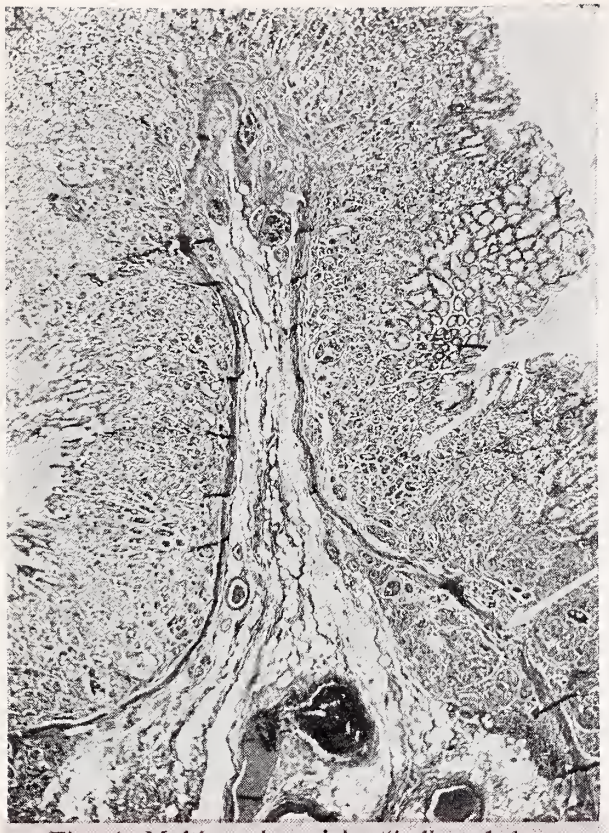


Fig. 1. Multicentric origin (indicated by arrows) of tumor deep in mucosa, folds of which are thickened and elevated to resemble Menetrier's disease (hematoxylin and eosin; x 20).

Zollinger Ellison Syndrome Associated

OCCURRING IN diffuse and localized forms, the condition variously known as giant gastric rugosis, convolutional hypertrophy of the gastric rugae, or Menetrier's disease (in deference to the investigator who first described it in 1888) is a rare and poorly understood lesion of the stomach. This condition often looks roentgenologically like hypertrophic gastritis and malignant gastric lymphoma, but it appears to be neither an inflammatory nor a neoplastic process. The fact that the condition somehow occasionally induces profound hypoproteinemia and edema in its victims makes it even more mysterious and the mystery is further deepened by its recently discovered association with polyglandular adenomas. Prominent among these adenomas have been those of the parathyroid glands, the pituitary gland, and the pancreas. To cap the intriguing climax, so to speak, an equally bizarre association consisting of intractable gastrointestinal ulceration, excessive gastric secretion, and noninsulin-producing islet-cell tumors (the Zollinger-Ellison syndrome) has been found coexisting with polyglandular adenomas and gastric rugosis.

Recently some of the ulcerogenic tumors have been found in extrapancreatic sites.[1,2] The following case illustrates such a tumor in a location hitherto undescribed. In addition, the patient

*Fellow in Surgery, Mayo Foundation
**Section of Surgical Pathology, Mayo Clinic

Noninsulin producing islet-cell tissue causing the "Zollinger-Ellison" syndrome has been found by the authors in a new site. Scattered foci of islet cells are demonstrated in the submucosa of the resected stomach. The need for total gastrectomy in this intriguing disease is strengthened. An important and timely new concept.

WILLIAM I. M. GOODRICK, M.B., Ch.B.*
MALCOLM B. DOCKERTY, M.D.**
Rochester, Minnesota

Gastric Tumor Showing Islet-Cell Features

had the polyglandular syndrome along with Menetrier's disease.

Report of Case

A 41-year-old white man, manager of a gas company, was seen at the Mayo Clinic in January, 1942, because of epigastric pain and vomiting. The family history indicated nothing of significance.

Sixteen years previously, the patient had noted the onset of epigastric distress which was relieved by eating, and his condition was diagnosed elsewhere as a duodenal ulcer. In 1933, because the pain became severe and the gastric outlet became obstructed, a gastroenterostomy was performed. For two years the patient felt better; but the pain returned, in addition to several episodes of bleeding, which were serious enough to require transfusion.

In May, 1941, a subtotal gastric resection (Polya type) was performed elsewhere for a large marginal ulcer and recurrent duodenal ulcer. Six weeks later, however, severe gastrointestinal bleeding recurred. The patient continued to have severe pain until the time he entered the Mayo Clinic; the pain was relieved by the use of alkalies.

Results of physical examination at this time were essentially normal. The patient was admitted to the hospital for further studies. The hemoglobin value was 9.3 gm. per 100 ml. of blood. Roentgenograms of the upper portion of the gastrointestinal tract revealed that a posterior Polya gastric resection had been performed and that jejunal obstruction was present. Fractional analysis of gastric contents after a test meal disclosed 56 clinical units of total acidity, 46 clinical units of free hydrochloric acid, and a residual volume of 45 ml. after 15 minutes.

At laparotomy on February 2, 1942, a huge gastrojejunal ulcer, perforating posteriorly, and 8 cm. of the jejunum were excised. The duodenal stump was explored, and a 4-cm. segment of pyloric antrum was found. The pyloric antrum was excised, the duodenal stump closed, and a new anterior Polya anastomosis effected.

The patient's immediate postoperative course was satisfactory; however, in May, 1942, melena again was

noted. It recurred in September, 1942, and was accompanied by a return of the epigastric pain. By the middle of October the pain had increased and was associated with daily episodes of vomiting.

The patient returned on November 19, 1942, and was admitted to the hospital. The value for hemoglobin was 7.3 gm. Gastric analysis after a test meal showed 34 clinical units of total acidity, 22 clinical units of free hydrochloric acid, and a residual volume of 92 ml. Marked gastrojejunitis was demonstrated roentgenographically. After unsuccessful trial of medical therapy, another operation was performed on December 17, 1942. A huge (8 by 4 cm.), recurrent, jejunal ulcer that was located opposite the stroma and penetrated posteriorly was excised along with 25 cm. of the jejunum. The remaining gastric pouch was re-resected, and gastrointestinal continuity was effected with an anterior Polya anastomosis.

After this operation, the patient continued to have repeated episodes of bleeding and pain and frequently required hospitalization elsewhere.

He returned to the clinic in February, 1946. A further jejunal ulcer was demonstrated roentgenographically, and gastric analysis after a test meal showed 36 clinical units of total acidity, 30 clinical units of free hydrochloric acid, and a residual volume of 60 ml. On February 13, a transthoracic vagotomy was performed.

The patient remained well for one year, then had repeated small gastrointestinal hemorrhages and required hospitalization. In the latter part of 1947, he was hospitalized in his home community for a severe hemorrhage. At this time he underwent an operation for removal of a calculus in the right ureter; he had been having episodes of ureteral colic and had passed several calculi.

After this operation, he gradually became drowsy and weak, continued to bleed from the upper portion of the gastrointestinal tract, and vomited almost everything he ate. He returned to the Mayo Clinic on December 23, 1947.

The additional history of renal calculi confirmed the suspicion of hyperparathyroidism. Calcium concentration was 13.9 mg. per 100 ml. of serum; the test was repeated after institution of a low calcium diet, and the value was consistently elevated. Phosphorus concentration was 3.9 mg. per 100 ml. of serum. Nothing abnormal was palpated in the neck. The hemoglobin value was 9.8 gm. A gastrojejunal ulcer was demonstrated roentgenographically. Gastric analysis after a test meal disclosed 32 clinical units of total acidity, 18 clinical units of free hydrochloric acid, and a residual volume of 21 ml.

On January 17, 1948, the patient's neck was explored, and a left superior parathyroid adenoma, 0.8 cm. in diameter, was removed. Postoperatively, the values for serum calcium and phosphorus returned to normal, and the patient was sent home with a recommendation to follow a strict ulcer diet.

The patient's course was satisfactory until March, 1949, when he was hospitalized for a massive gastrointestinal hemorrhage, and required 2500 ml. of blood. He returned to the clinic in May, 1949, because of severe epigastric pain. A gastrojejunal ulcer was demonstrated roentgenographically. Gastric analysis after a test meal at that time showed 54 clinical units of total acidity, 40 clinical units of free hydrochloric acid, and a residual volume of 100 ml. The value for serum calcium was 9.8 mg. and for phosphorus, 2.6 mg. A short course of roentgen therapy was administered to the remaining portion of the stomach, and the patient was sent home again with recommendation to follow a strict ulcer diet.

While at home, the patient did poorly, was never free of pain for a complete day, and was able to work only a few hours each week. He had repeated episodes of bleeding and required hospitalization and transfusion. He returned to the clinic in April, 1953, seeking relief through another operation. A jejunal ulcer was again demonstrated roentgenographically. Gastric analysis after a test meal showed 36 clinical units of total acidity, 30 clinical units of free hydrochloric acid and a residual volume of 200 ml.

At operation on April 11, 1953, a perforating gastrojejunal ulcer, 8 cm. in diameter, was found. A portion of jejunum was resected, and the remainder of the stomach excised. The jejunum was anastomosed to the esophagus via an end-to-end procedure supplemented by a Roux Y jejunojejunostomy. No abnormality of the pancreas was detected on careful palpation. The mucosal folds in the resected portion of the stomach were unusually prominent, and Menetrier's disease was diagnosed.

The patient was dismissed after a satisfactory postoperative course and has not returned to the clinic. However, he has been followed up by correspondence and has had no further trouble. His appetite is good, he has maintained his weight, and he has returned to work. Injections of vitamin B_{12} are his only medication.

Pathologic Features

Because the proximal segment of stomach, removed in 1953, revealed the picture of Menetrier's disease, the present case recently was included in a review of patients considered as possibly having the Zollinger-Ellison syndrome.[3]

Examination of the formalin-preserved segment of stomach grossly revealed the previously diagnosed hypertropic rugosity. New sections (the original ones has faded) disclosed foci of tumor cells lying deep in the mucosa and multifocally over an area measuring about 3 by 2 cm.

There was no evidence of ulceration and the tumor cells occupied positions close to the bases of the gastrict glands (Fig. 1). They were smaller and appeared darker than the adjacent chief, parietal, and mucous cells and were not traceable to any of these. Clusters of tumor cells appeared to extend through the muscularis mucosae to invade the submucosal lymphatics (Figs 2 and 3). An alveolar pattern was suggested, but there was no gland formation. No peripheral palisading was observed, such as occurs in gastric carcinoids.

The tumor cells presented an epithelial appearance with their sharp cellular margins (Fig. 4). Nuclei were centrally placed and each contained a fairly prominent nucleolus, coarsely punctate chromatin, and a sharply defined nuclear membrane. Cytoplasm was relatively abundant and granular; the granules were fairly coarse

and stained somewhat basophilically. In spite of a marked cellularity, mitotic figures were found only with difficulty.

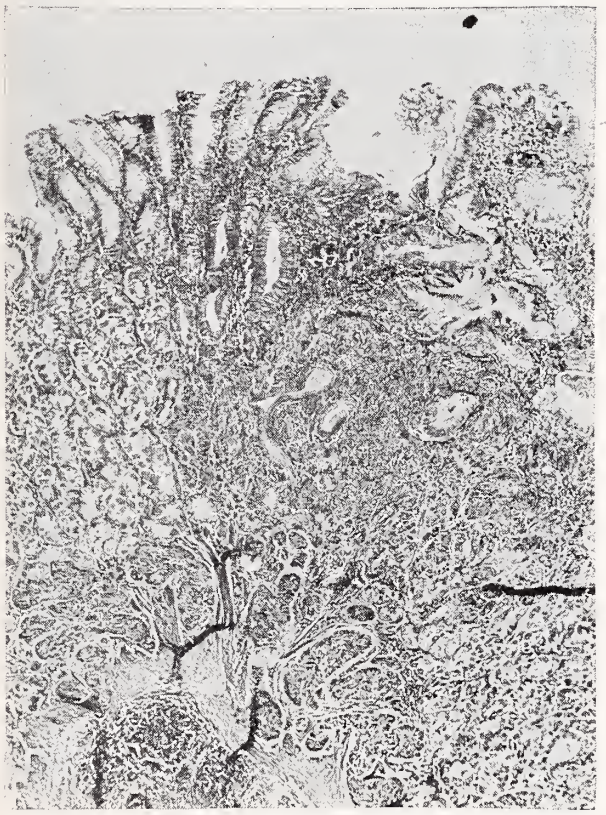


Fig. 2. Focus of tumor featuring small cells is seen spreading from its origin beneath nonulcerated surface into lymphatics of submucosa (hematoxylin and eosin; x 40).

Sections did not show argentaffinity. Although the aldehyde fuchsin method brought out cytoplasmic granularity more clearly than did the hematoxylin and eosin stain, the appearance was not specific for a diagnosis of insular adenoma.

The tumor did not resemble the previously removed parathyroid adenoma (Fig. 5).

Discussion

In 1955, Zollinger and Ellison[4] reported on two patients who had intractable gastrointestinal ulceration, excessive gastric secretion, and a non-insulin-producing islet-cell tumor of the pancreas.

Since that time more cases have been reported,[5] some with additional conditions present, namely diarrhea, malabsorption, hypokalemia, Menetrier's disease, and multiple adenomas of ductless glands.[6,7]

The link between gastric hypersecretion and intractable peptic ulceration appears to be the production of a powerfully ulcerogenic hormone.

In 1960, Gregory and associates[8] extracted from certain pancreatic tumors a gastrinlike substance that was effective in stimulating the production of hydrochloric acid in the stomach of a dog provided with a fistula and a completely denervated fundic pouch. Similar results using similar methods have been produced by Code and associates[9] at the Mayo Clinic.

The association of noninsulin-producing islet-cell adenomas and carcinomas of the pancreas with intractable peptic ulceration is the characteristic feature of the Zollinger-Ellison syndrome. The recently observed association of other endocrine adenomas and Menetrier's disease with such ulceration renders this strange clinical complex more mysterious. The presence of ulcerogenic islet-cell tumors in extrapancreatic locations has been documented occasionally in cases of the syndrome, but all of these tumors have been "concealed" in the pyloroduodenal area, and their discovery has often been at necropsy.

A search of the literature on the Zollinger-Ellison syndrome for a case comparable to the one presented in which a multicentric tumor resembled an islet-cell growth and was found be-

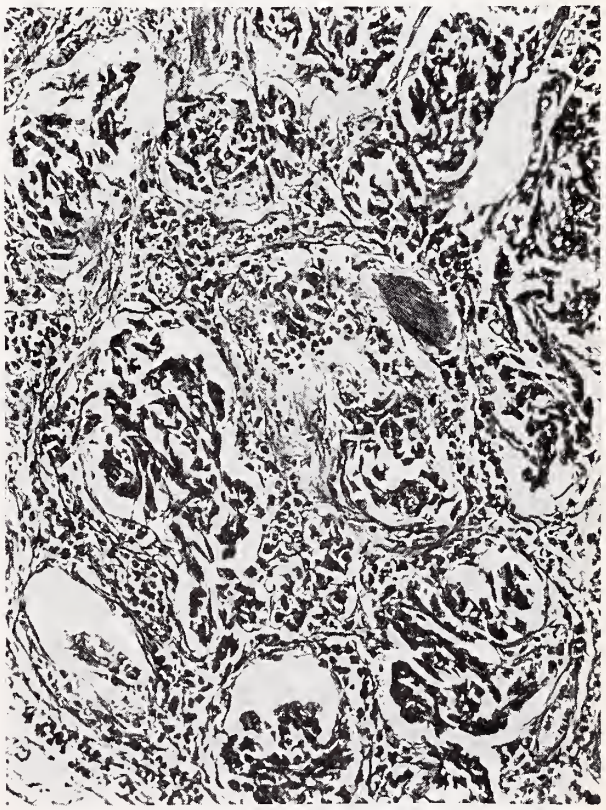


Fig. 3. Clumps of dark-staining tumor cells completely fill submucosal lymphatics (hematoxylin and eosin; x 150).

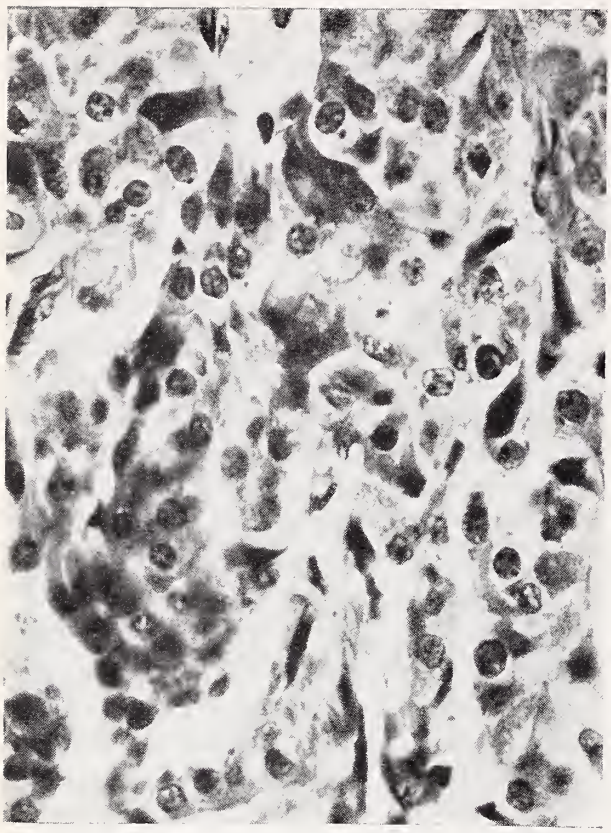


Fig. 4. Tumor cells show alveolar pattern of epitheliumlike cells with heavily granulated cytoplasm. Note prominent nucleoli (hematoxylin and eosin; x 700).



Fig. 5. Parathyroid adenoma, chief cell type (hematoxylin and eosin; x 80).

neath the rugose gastric folds of Menetrier's disease has been unsuccessful.

When operating on patients with suspected Zollinger-Ellison syndrome, the surgeon should search the stomach as well as the pancreas and the pancreatic wall of the duodenum for a tumor. Resected specimens of the stomach, especially those of patients with Menetrier's disease, should be subject to microscopic scrutiny.

In the present case the long sequence of disability and ultimate discovery of a tumor supports the view of Zollinger and Craig[7] *that total gastrectomy rather than total pancreatectomy must remain the treatment of choice in patients with this syndrome if it is not possible to identify the primary tumor and those tumors that have metastasized from it.*

Summary

A man with a 27-year history of severe, recurrent peptic ulcer underwent six operations on the upper portion of the gastrointestinal tract; the final operation was total gastrectomy. Since the total gastric resection eight years ago, he has remained in satisfactory health—a fact which, it would seem, practically excludes the possibility of the gastric tumor being anything other than a primary growth.

Recent re-examination of the preserved resected stomach revealed Menetrier's disease (giant gastric rugosis or convolutional hypertrophy of the gastric rugae) associated with a multicentric submucosal tumor which resembled an islet-cell tumor. The importance of this previously unrecorded site for ectopic islet-cell tissue is stressed.

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WHAT'S YOUR DIAGNOSIS?

This fifty-one-year-old white male was admitted to the hospital on April 16, after being brought to the Emergency Room because of severe pain in the upper abdomen and lower chest. The pain had an acute onset approximately one-half hour prior to admission, causing him some shortness of breath and right upper quadrant pain that radiated through to the back. He had similar less severe episodes throughout the past several years but could not relate them to diet or food dyscrasia. There was no history of ulceration, gall bladder disease or heart disease.

Past history was interesting in that while in transit through Milwaukee, three years previously, he had a left nephrectomy for a "non-functioning" kidney after a similar episode. Further interrogation revealed that this patient was an overhead crane operator in a steel plant and was just passing through town when this occurred.

Physical examination showed a fifty-one-year-old well-developed and well-nourished white male diaphoretic, apprehensive, and with obvious chest and abdominal discomfort. P. B. 140/80; P. 80; and Resp. 20. The positive findings were limited to the abdomen and included generalized guarding, most marked in the right upper quadrant; some rebound tenderness, also in the right upper quadrant; and hyperactive bowel sounds without borborygmi.

Initial studies revealed a normal electrocardiogram; and normal flat and upright roentgenograms of the abdomen. The serum bilirubin was indirect 0.10, direct 0.65. The transaminase was 26, the WBC was 8,350 with a normal differential, and the hemoglobin was 13.8 grams %.

The patient was hospitalized, and he required large doses of narcitics for the relief of pain. However, by evening, his abdomen was becoming less tender and he seemed better, although he now felt nauseated.

A cholecystogram was done on the following day and was reported to be normal. He still felt nauseated, was nervous and apprehensive, but his abdomen had only mild tenderness. Further laboratory studies were all normal, including a complete blood count, urinalysis, transaminase, and serum amylase. A chest X ray was also normal.

What's your Diagnosis? Turn to page 653.

Attack is the reaction. I never think I have hit hard unless it rebounds.
—Samuel Johnson

I have no other but a woman's reason: I think him so because I think him so.
—Shakespeare

"The Stroker"

Throughout the ages the desire to alleviate pain and cure disease has induced mankind to accept blindly any means purported to effect quick relief and recovery. From invoking supernatural aid to concocting witches' brews and employing fetishes and charms, no remedy or ritual has been too absurd to be eagerly tried.

In seventeenth century England the afflictions considered particularly amenable to magic were the ague (malarial fever) and the king's evil (scrofula). Practically every ancient crone had a sure-fire charm for the ague; but the more serious king's evil could be cured only by the touch of the sovereign, whom divine right imbued with special power against that disease. During the reign of the Stuarts the monarch's touch was exercised with much pomp and ceremony — even with a special prayer provided in the liturgy.

Then in 1662 an Irishman, Valentine Greatrakes, felt suddenly and strongly possessed with similar power to cure through the laying on of hands; and his name flashed across seventeenth century Ireland and England as that of the man with the colossal effrontery to assume the power which, for three centuries, had been the sole prerogative of the king.

A servant suffering from scrofula enabled Greatrakes to demonstrate his mysterious and newly-acquired force, and she joyfully proclaimed herself cured by application of his hands.

After this success he no longer restricted his practice to the king's evil but made himself available to any who sought his aid, regardless of their complaints. For this presumption he was summoned into the ecclesiastical court of Lismer on charges of having usurped royal prerogative on the pretense of being inspired by the Holy Spirit. Mr. Greatrakes denied these allegations. Had he been a poor man he might have been hanged for treason; but as a man of education and of some wealth and position who refused payment for his services, he was pardoned though severely reprimanded.

Though Greatrakes denied there was anything miraculous about his power, he did acknowledge that it was a gift from God and not due to the temperature of his body, as had been suggested.

Too much adverse publicity, however, discredited his carrer and clouded his reputation; and he finally returned to Ireland, a disillusioned man, his integrity impugned, unable to explain what even he could not understand.

Scriptural sources abound with reports of many healings through the laying on of hands: healing as credible today as in Biblical times; therefore it hardly behooves us to deny the validity or verity of any mysterious phenomena because they defy explanation. How explain the beneficent touch of the human hand tenderly soothing away pain or tenseness, or with gentle pressure stimulating sluggishness and easing muscular soreness!

And what more magic a wand than the simple gesture of the hand raised in benediction! We only know that there is no substitute for the touch of the human hand, whether manifest or symbolic.

Irene T. Fassett
Minneapolis, Minn.

The Treatment of Diabetic Vitreous Hemorrhages

Vitreous hemorrhages in diabetic patients have been reduced through the use of a new anabolic steriod and a hemostatic agent. Clinicians will want to relate this experience to their own diabetic patients.

FRANCIS M. WALSH, M.D., M.Sc.
LEON D. HARRIS, M.D.
JOHN M. SCHIPKE, B.A.
Minneapolis, Minnesota

It is becoming apparent that diabetes mellitus is a disease of stress: the response of the neurohumoral regulating mechanism to noxious stimuli (Wolff)[1]. This response may in time bring about physiological (Selye)[2] and later morphological changes (Wolter)[3].

The limitations of insulin are well known. Despite the most meticulous regulation of diet and insulin dosage, the diabetic develops arteriosclerotic changes much earlier than does the normal individual.

Diabetic Eye Changes

Retinitis

Diabetic retinitis appears in most diabetics after eight to fifteen years of the disease and progresses slowly. Waxy exudates, microaneurysms and intraretinal hemorrhages present a typical clinical picture. Central vision slowly deteriorates, but peripheral fields remain intact until terminal stages of the disease, when the patient appears blind even though he has a fair field remaining by perimeter testing. These changes do not appear related to control of the hyperglycemia.[4]

Hemorrhage

Vitreous hemorrhages are described first as a "smoky sensation" which tends to clear in a few weeks. With each recurrence of the hemorrhages, more vision is lost until the eye is blind. Blindness is usually bilateral but not simultaneous, and diabetic retinopathy is usually present without relation to hemorrhages and vitreous clouding.

During the past two years we have been able to either prevent or hold vitreous hemorrhages to a small size, allowing better observation of the development of characteristic retinal changes. Shiny, glistening sheets of glial tissue form along the large vessels around the macular area, with frequent vascularized branches projecting into the vitreous. The macular area usually remains quite clear, with visual impairment being due only to diabetic retinopathy. We have not observed retinal detachment from contraction of these sheets of scar tissue.

Diabetic vitreous homorrhages usually occur in males, and the only deaths we have seen were in males. These patients are usually "quite diabetic," their insulin requirement may or may not be high, but their control is brittle. Insulin reactions are not uncommon; we have not seen proliferative retinitis in the absence of hemorrhage and find our great problem one of combatting vitreous clouding. We have found proliferative retinitis causes surprisingly little blindness. The loss of vision follows repeated hemorrhages and is due to incomplete clearing of the blood from the vitreous humor.

Review of Other Studies

Treatment of blinding diabetic eye changes by vitamins, lipotropic substances and methods other than insulin has proved of little value. Kronenberg[5] mentions the use of testosterone propionate as early as 1951 by Saskin, Waldman and Pelner. No results were reported, but masculinization of female patients was observed.

Roberts[6] used estrogens over a three-year period in nine patients and observed improved vision or halting of progressive visual deterioration. Since he felt that vitreous hemorrhages often occur in a hypoglycemic state, he maintained his patients on the hyperglycemic side.

Recently nandrolone phenpropionate (Durabolin) and nandrolone decanoate (Deca-Durabolin), new low-androgenic anabolic steroids with a duration of action approximately one week and four weeks respectively per injection, have been used successfully in Europe in the treatment of diabetic eye complications by Hofmann[7] and Valk[8], among others.

Aid[9] gave pyridoxine, 100 mg. daily and Durabolin, 25 mg. weekly, to 112 patients with Kimmelstiel-Wilson syndrome. Not only was there a vast generalized improvement, but the tendency to recurrent vitreous hemorrhages ceased and there was improvement, sometimes remarkable, in visual acuity.

The beneficial effect of Durabolin on blood sugar levels has been reported by Dordenne and Rosch,[10] on insulin requirements by Houtsmuller[11], and on general clinical condition as well as improved visual faculty by Houtsmuller and Henkes.[12] Less severe types of diabetes seem to respond more favorably to Durabolin therapy.

Present Studies

Because of the European reports on the diminution of vitreous hemorrhages during therapy with the two nandrolone esters, we employed Durabolin for this purpose in several of our own patients. The initial dosage was 25 mg., i.m., once weekly; in some cases we reduced this dosage schedule to 25 mg. every ten days. Concomitant therapy with pyridoxine, 100 mg. daily, was instituted in certain patients because of Aid's success with this vitamin. We cannot attribute any clinical success to this agent specifically, nor can we find any specific qualities in the literature that would recommend it. We did, however, feel that in some patients the concomitant use of Adrestat, a hemostatic agent, was of benefit in reducing the number and size of hemorrhages, probably by increasing capillary resistance.

The following cases typify the results of Durabolin therapy in diabetic patients with vitreous hemorrhages.

Age	Sex	Length Treat	Change in hemorrhagic condition	Change in visual acuity
66	M	7 mo	no fresh hemorrhages	none reported
57	M	12 mo	no fresh hemorrhages	improvement
50	F	5 mo	fresh microaneurysms after 2 months; no fresh hemorrhages after 3 months	improvement
30	M	1½ mo	no fresh hemorrhages	improvement
52	F	9 mo	lessening of hemorrhages	improvement
27	M	10 mo	lessening of hemorrhages	improvement
32	M	16 mo	no fresh hemorrhages	improvement
30	M	16 mo	no fresh hemorrhages	improvement
26	F	3 mo	medication discontinued because of no ocular improvement, interference with menstrual cycle plus severe insulin reactions	

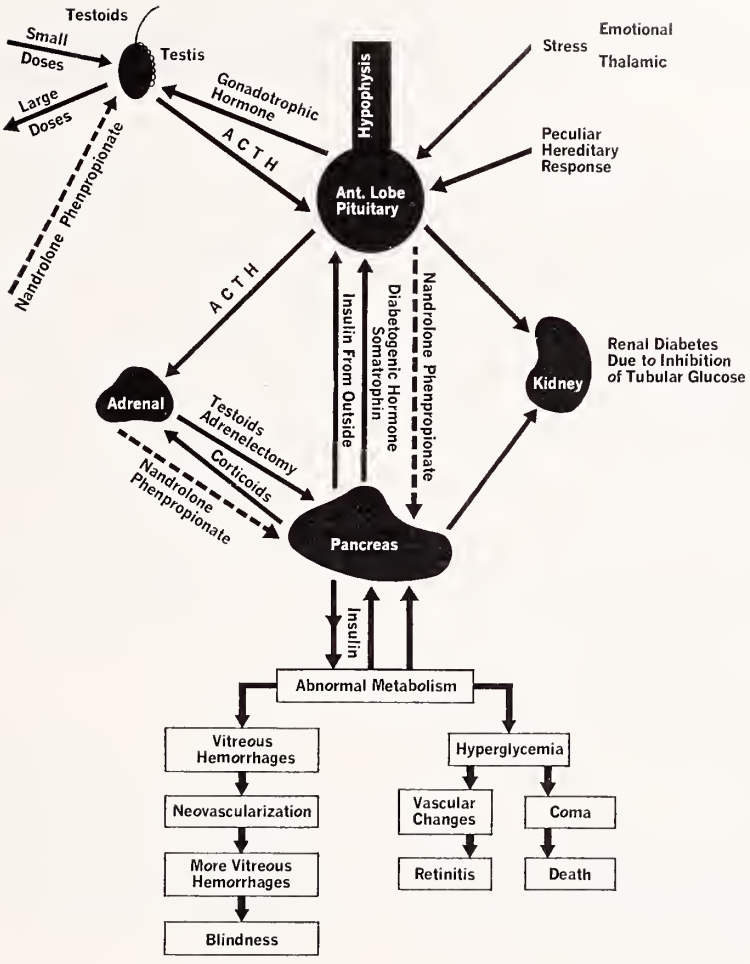


Diagram of proposed sites of influence of different hormone systems (after Selye). The dotted lines represent areas where the antidiabetogenic influence of Durabolin might take place.

Comment

From our studies of these and other patients, we have seen that vitreous hemorrhages occur in the presence of hypoglycemia, heavy physical labor (hypoglycemia?), or when the urine sugar shows plus 4. Trauma can also cause hemorrhaging. Often a vasculitis is seen along the major vessels before sheaths of glistening white scar forms. Visual acuity levels vary from day to day without noticeable fundus changes. The appearance of the fundus or state of the vitreous humor does not seem related to visual acuity.

Other observers, while reporting that patients treated with Durabolin feel better and see better, are careful not to mention specific changes in visual acuity values. Many allude to improvement but are unable to see accompanying fundus changes. Unfortunately, an objective measurement of improvement is difficult and even impossible to obtain because biochemical methods at this time are not sensitive enough to measure observed changes. A careful, sensitive and experienced clinician is still medicine's most accurate testing device.

We have been treating diabetic vitreous hemorrhages for the past seven years. Until results of European studies encouraged us to try Durabolin, no therapeutic regimens, including bioflavinoids (rutin with ascorbic acid and quertin with

ascorbic acid) and tranquillizing agents, had proved of much value. Vitreous surgery (transplants or central aspirations) had proved valueless.

With the initiation of Durabolin, however, we have witnessed the reduction of size and number of diabetic vitreous hemorrhages and an increase in the patient's systemic stability. Moreover, patients reported that they felt better and noted an improvement with corresponding weight gain. Mood elevation was a common observation. This feeling of well-being is accompanied in men by better muscle tone and better co-ordination, in women by a better stance and more interest in their appearance.

We also feel that the Durabolin-treated diabetic actually cerebrates better. We believe that the nervous systems of these people actually operates at a higher level, and though the organ of sight may send up the same number of impulses as previously, the patient makes better use of them and so "sees better."

We intend to continue our studies, substituting Deca-Durabolin for Durabolin, a new nandrolone ester which reportedly has a duration of action of four weeks following a single 100 mg. intramuscular injection. We plan, too, to continue the concurrent use of Adrestat, given in capsule form once daily.

Summary

The foregoing study takes into consideration the problem of progressive loss of vision due to repeated hemorrhages into the vitreous humor of patients with diabetes mellitus. The nature and occurrence of these hemorrhages and their response to treatment are examined through review of available references plus our personal observation over a seven-year period.

We have found that Durabolin, a long-acting, nonvirilizing anabolic steroid, and Adrestat, a hemostat designed to decrease capillary resistance, have definitely reduced the number and size of vitreous hemorrhages in patients with diabetes mellitus.

Acknowledgements

The Durabolin and Adrestat used in this study have been supplied gratis by Organon, Inc., West Orange, N. J. Pyridoxine in 100 mg. tablets was supplied at manufacturers' cost by Rowell Laboratories. Rutin with ascorbic acid and quertin with ascorbic acid are manufactured by Abbott Laboratories.
We would like to thank Mr. Kenneth Erickson for his invaluable aid in procuring English translations of the European work on Durabolin and Deca-Durabolin and for his timely suggestions and encouragement.

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I would rather be attacked than unnoticed. For the worst thing you can do to an author is to be silent as to his works.—Samuel Johnson

Early Squamos Cell Carcinoma of the Cervix:

Selection of Cases for Surgical Management *

JOHN S. WELCH, M.D.**
Rochester, Minn.

Cytologic screening for early cancer of the cervix has brought new hope and enthusiasm to patient and physician alike. A reasonable and useful plan of attack is presented.

It is difficult to refrain from excitement and enthusiasm in discussing the selection of cases for surgical management when the result of a cervical smear has indicated a possibly dangerous situation. Here is an opportunity to find a tumor before signs of its presence are visible, and one which can be cured in virtually every instance without resort to extensive or crippling operation.

The Abnormal Cervical Smear

When the examination of a cervical smear gives abnormal results, the physician must make many important decisions:

1. He must determine what to tell the patient.
2. He must decide the best way to manage the case up to a final diagnosis.
3. He must judge whether his own hospital offers the complex service and care which are demanded for proper therapy.
4. He must assess his own ability to cure the disease without crippling the patient.

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*Read at the meeting of the Minnesota State Medical Association, Minneapolis, Minnesota, May 21 to 23, 1962.

**Sections of Obstetrics, Gynecology & Surgery, Mayo Clinic.

As Dr. McKenzie* has said, it is important to remember that an abnormal smear does not constitute a definite diagnosis of carcinoma of the cervix. The definite diagnosis of carcinoma of the cervix can be made only by a pathologist who evaluates tissue received from the surgeon. Punch biopsies usually do not suffice to allow the full appraisal required in the diagnosis of early stages of carcinoma of the cervix; final interpretation of an abnormal cervical smear can be made only by study of a properly removed cervical cone.

The Cold Cone Technique

The woman who, during the course of a routine physical examination, is found to have an abnormal cervical smear should be admitted to the hospital soon after detection.

Conization requires an operating room, an anesthetic, a surgical drape, a cold knife, and, for maximal efficiency, a pathologist who is available immediately and who can interpret fresh-frozen sections of a cervical cone.

Avoid Delay

Cervical cones can be taken in the local hospital and can be sent to a pathologist who is not immediately available; but an immediate report prevents delay of definitive therapy, prevents great anxiety, and requires only a single operating-room visit, charge, and anesthetic. Diagnostic delays following cervical conization also allow an abnormal state of edema, hemorrhage, and infection to develop in the cervical and paracervical tissues, which may delay the necessary operation for several days or weeks. Diagnostic steps for patients in whom an abnormal smear is found can be carried out most efficiently in a major medical institution whose members, especially gynecologist, surgeon, and pathologist, have worked together, and whose surgical specimens, both diagnostic and therapeutic, can be analyzed microscopically within minutes after excision.

Avoid Contact

Care should be taken during the usual vaginal preparation to avoid contact with the cervical epithelium, since the binding power of malignant cells is much less than that of normal cells, and it is possible to scrub away or denude these very important areas of the cervix. After exposing the cervix, a tenaculum is placed well away from the cervical os, and a Schiller test is made to permit visualization of all areas where abnormal surface tissue exists (Fig. 1).

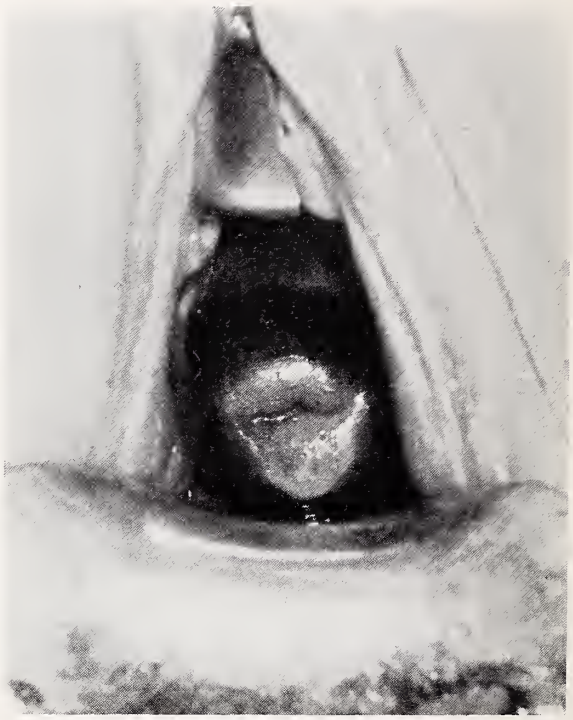


Fig. 1. The Schiller test defines the abnormal zone. Complete excision of this area is essential.

En bloc removal

The affected areas are removed en bloc with a cold knife conization, the cone to include all of the unstained areas and to extend upward into the endocervical canal sufficiently to ensure that the squamocolumnar junction is intact when sent to the pathologist. (Fig. 2).

Avoid Electrocautery

Electrocautery should never be used for cervical conization, since the coagulation either destroys or alters the epithelial structure. Under ideal circumstances, the pathologist can complete his analysis in approximately 10 minutes, supplying important information which the surgeon can use as a basis for his decisions:

Criteria for Definitive Treatment

When No Cancer Cells Are Found

If cancer is not present the procedure may be

* Dr. McKenzie's technique of preparing and examining the Papanicolaou smear was presented to Minnesota Medicine for publication. The editorial board regretted that it was impossible to reproduce this very excellent manuscript because the illustrations and slides were in color. The cost of reproducing microphotographs in color is prohibitive. Without color the microphotographs would not serve their purpose.

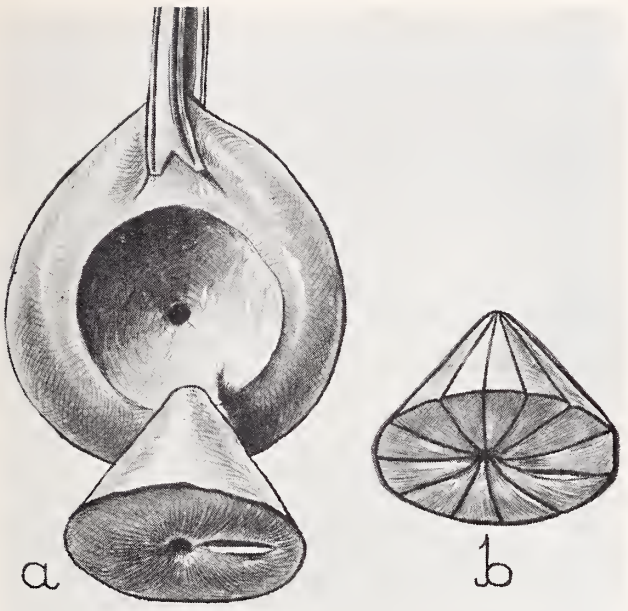


Fig. 2. A cold knife conization demonstrating en bloc removal of unstained cervix and squamocolumnar junction. [Reproduced with permission from Waddell, K. E., Welch, J. S., and Decker, D. G.: Positive Cytologic Findings in Preclinical Squamous Cell Epithelioma of the Uterine Cervix: Surgical Management. Surg Clin N A 41:1025, 1961.]

completed by a gentle definitive dilatation and curettage, and after coagulation for hemostasis (Fig. 3) the patient can be removed from the operating table. She needs only to await the healing of the cervix, and then to be followed up with an annual smear test. It is imperative that the pathologist find cells on the excised tissue which match those of the smear in order to be perfectly satisfied that the cone has delineated the abnormality.

When Cancer Cells Are Found

If cancer is found, the pathologist will inform the surgeon while the patient is on the operating table not only of the extent of the tumor but also of its degree of removal with the cone; complete removal is indicated when no invasion is found to be present and when the margins of the cone are clear of tumor. If the pathologist states that the tumor is an *in situ* or stage 0 carcinoma of the cervix, a relatively simple surgical procedure is all that is required. When fertility must be preserved and when the cone removes all of the malignant lesions, conization is followed by hemostatic cautery. When fertility need not be preserved, a simple hysterectomy, accomplished either vaginally or abdominally, is the treatment of choice. In women who have normal ovaries and are relatively young, the ovaries should be preserved, since the ovarian hormone offers considerable protection against the development of atherosclerosis and has marked effect on bone metabolism. However, at the present time it seems that hormones have no relationship to the formation of carcinoma of the cervix. In a few patients even simple hysterectomy may carry a great risk. These women, although very few in number, will be candidates for limited radiation to the cervix if they have not already been cured by generous conization (Table 1).

Invasive Cancer

If invasive carcinoma is found by the pathologist, two choices are available: radical Wertheim hysterectomy or intensive radiation of the pelvis.

For the period 1932 to 1960, 1290 patients with *in situ* carcinomas of the uterine cervix have been treated by various means. The modes of therapy were largely surgical (Table 2). The follow-up of these patients resulted in the data found in Table 3.

Summary

In the selection of cases of early carcinoma of the cervix for operation, the physician must proceed from the detective to the diagnostic phase.

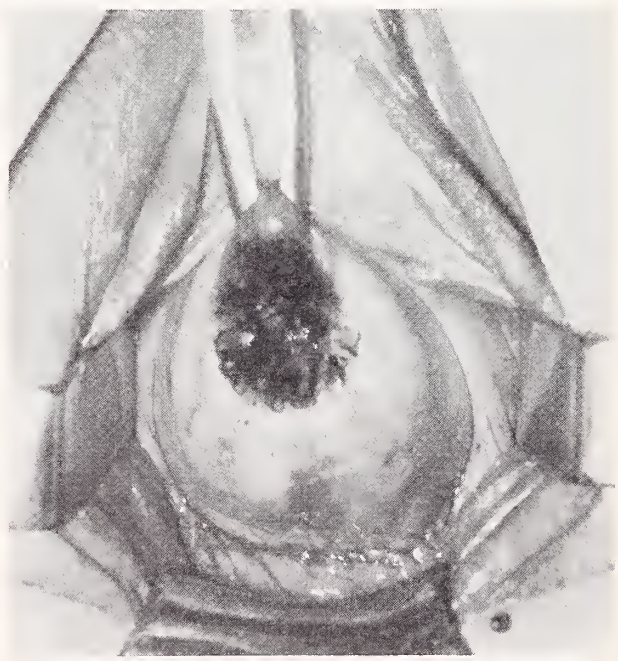
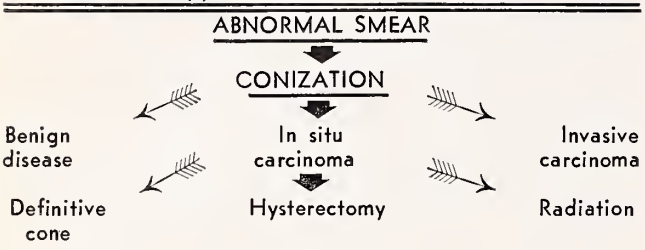


Fig. 3. Hemostasis following conization is by cautery, packing, or Sturmdorf reconstruction.

Table 1
Outline of Therapy for Preinvasive Carcinoma of the Cervix



This is accomplished through cervical conization which allows the pathologist, not the surgeon, to make the diagnosis. Utilizing information received from the pathologist, the surgeon can decide the specific type of treatment needed. The best therapy in most cases of proved *in situ* cervical carcinoma is a simple operative procedure which is designed to preserve ovarian function and fertility, if possible. Radiation therapy has limited usefulness, largely because of its side effects on ovarian tissue.

For most efficient handling of the intricacies of diagnosis and treatment of early squamous cell carcinoma of the cervix, transfer to a gynecologic center after detection of an abnormal smear is also recommended.

Table 2
Type of Treatment for Preinvasive Carcinoma of the Cervix at the Mayo Clinic: 1932-1960

	Cases
Hysterectomy	1152
Definitive conization	69
Radiation therapy	45
Others	24
Total	1290

Discussion

Question: You advised frozen section at the time of conization, but you did not present any evidence that waiting for the paraffin sections increased morbidity or mortality. Do you think the procedure at your clinic is at all influenced by the distance your patients must travel?

Dr. Welch: Yes, but I think our procedure is influenced more by the resulting avoidance of two anesthetics, two trips to the operating room, and an emotion-laden period of waiting.

Question: A 39-year-old lady with two teenage children is four months pregnant and has a carcinoma *in situ*. What type of therapy would you use?

Table 3
Results of Treatment: Follow-up Study in Cases of Preinvasive Carcinoma of the Cervix: 1932-1960

	Cases
Living and well 3 or more years	811
Living and well < 3 yr.	438
Dead (not related)	37
Dead (carcinoma, vagina)	3
Operative death	1
Total	1290

Dr. Welch: If the *in situ* carcinoma has been removed by the cone, vaginal delivery at term is proper with an examination of cervical smears postpartum. If the *in situ* carcinoma has not been completely removed by conization, and if the edges of the cone show the malignant lesion, cesarean hysterectomy is indicated despite the pregnancy.

Question: What technique do you use postoperatively for possible recurrence of carcinoma *in situ* when hysterectomy has been performed?

Dr. Welch: A vaginal vault smear is taken and examined in six months and then repeated annually.

Question: Why can't a cold knife conization be done with a local paracervical anesthetic?

Dr. Welch: It can be.

The whole life of man is but a point of time; let us enjoy it, therefore, while it lasts, and not spend it to no purpose. — Plutarch

---

Better beans and bacon in peace than cake and ale in fear. — Aesop

---

A jest breaks no bones.—Samuel Johnson

Acute Renal Failure

Convulsions during the Diuretic Phase

Complicating Postpartum Hemorrhage

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THE OCCURRENCE of convulsions during the diuretic phase of acute renal failure is an uncommon event. The authors were unfamiliar with this complication when it appeared during the care of a patient with oliguria following postpartum hemorrhage. This report aims to draw attention to this unusual obstetrical problem.

Case Report

The patient was a 19-year-old para 1-0-0-1. Her estimated date of confinement was 5-1-56. She was Rh positive. Her past medical history was negative. Physical examination was within normal limits. She made regular prenatal visits from the second month of her pregnancy and her antenatal course was normal. Her total weight gain was 28 pounds. Hemoglobin, urine and blood pressure were all within normal ranges.

Labor began on 5-6-56 and after approximately 10 hours was terminated by a spontaneous delivery under pudendal procaine block. Pitocin was given after delivery and ergotrate at the completion of the third stage. The baby was a normal male infant and weighed seven pounds, four ounces. The placenta delivered by Schultze mechanism and was complete. The patient was awake, having had only small amounts of nitrous oxide and oxygen with her contractions during delivery. The episiotomy was repaired and completed at 10:20 A.M. At this time it was noted that the patient had considerable vaginal bleeding. The fundus of the uterus was very firm, although the bleeding appeared to come from the uterine cavity. At 10:30 A.M. the uterus was packed with five yards of three-inch gauze under nitrous oxide and oxygen analgesia. After packing it was noted that there was some bleeding of the repaired episiotomy. The patient's blood pressure at 10:35 A.M. was 70/38 with a pulse of 120. The cervix was inspected and there was a tear in the right lateral portion, which was repaired with three stitches.

At 10:40 A.M. the patient was in severe shock with no measurable blood pressure or pulse. An intravenous infusion of 500 cc. of five per cent glucose in water was started. At 10:45 A.M. one ampule Adrenosem was given intramuscularly. It was noted that the blood

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did not seem to clot. A specimen of venous blood was drawn to observe for clot formation and 200 cc. of Dextran was given. The patient had been typed and crossmatched, and starting at 10:45 A.M. 500 cc. of blood from the bank were given, along with 5 mgm. of Hykinone and 0.2 mgm. of ergotrate intravenously. She had bled through the pack and it was removed. At 11:00 A.M. another 500 cc. of whole blood were pumped into the patient. At 12:10 P.M. her blood pressure was 66/30, pulse 120. Then a third pint of whole blood and one gram of fibrinogren were given. The blood pressure was 88/48, pulse 115. At 2:00 P.M., 1.8 gms. of fibrinogren were given.

At 2:25 P.M. the patient's blood pressure was 92/48, pulse 115, and another pint of whole blood, freshly drawn, was begun. She was then removed from the delivery room and placed in a private room. She looked better and was able ot take 125 cc. of orange juice and 200 cc. of water by mouth. She was still bleeding and saturated approximately two pads every 30 to 40 minutes. At 3:05 P.M. her blood pressure was 130/96. Another 500 cc. of whole blood, freshly drawn, with two ampules of pitocin, were given. At 3:30 P.M. another gram of fibrinogen was given. At 4:15 P.M. blood pressure was 128/100, pulse 100; and another 500 cc. of freshly drawn whole blood were given. At 4:30 the patient's blood pressure was 128/110, pulse 94; two cc. of combiotic were given intramuscularly. By 5:00 P.M., she was cheerful and reading, and at 5:30 P.M. a few small clots on the pad were noticed, the first seen since the delivery. The blood drawn earlier to be tested for clotting had not clotted 24 hours later. During the next 48 hours the patient's general condition remained reasonably good, her blood pressure and pulse essentially normal. Her hemoglobin continued to drop, though there was no excessive bleeding. The major problem was oliguria. The day of delivery her total urine output was 200 cc. During the next 36 hours there was a total output of 260 cc. of dark bloody urine and for the next 24 hours the amount was 120 cc.

Because of this problem the patient was transferred on 5-10-56 to the University of Minnesota Hospitals for further care. This was her third postpartum day and approximately 80 hours after delivery. Examination showed a very pale, ill-appearing white female who was not in pain. Her skin was warm and moist. There was no ecchymosis, pitting edema, or jaundice, but a small amount of exertional dyspnea. A soft systolic murmur was heard. There was moderate abdominal distention. Pelvic examination showed a normally-involuting uterus with normal lochia and a healing episiotomy. The adnexa were negative. An indwelling catheter that had been placed prior to transfer was opened and 150 cc. of clear, pale yellow urine obtained, an eight hour accumulation, alkaline in reaction with a specific gravity of 1.008. Albumin was 1+. Occasional red blood cells and white blood cells were found on microscopic examination. No casts were seen. The test for urine bilirubin was negative. The patients blood pressure was 140/90, pulse 132, temperature 101.8, and her weight 146½. Other admission laboratory data were: hemoglobin 5.5 grams per cent,, white blood count 5,150, Serum potassium 5.7, chloride 94, sodium 140 and blood urea nitrogen 80. X rays of the chest and abdomen were normal. Blood and endometrial cultures were negative. The urine culture showed Candida albicans.

During the next 24 hours the patient continued to increase her urine output. Unfortunately, the exact 24 hours total is not available because the urine bottle was emptied by unauthorized personnel without measurement, but the amount was at least 1500 cc. During the same interval, fluid intake was limited to 500 cc. of 5% dextrose in distilled water and 2000 cc. of whole blood.

In the second 24-hour period after admission she was allowed 1000 cc. fluid intake and the output was 1525 cc. At this point it was felt that the patient was on her way toward recovery and doing well. Her temperature had become normal, her pulse was in the 100 range, and her blood pressure was still at the 140/90 range. She was allowed up and given an 800 calorie salt-free diet, with fluids limited to 1000 cc. orally per 24 hours. She felt much better. However, her blood urea nitrogen was rising.

The patient continued to do well until approximately 68 hours after admission when she suddenly had a convulsion, which occurred while she was lying in bed talking with her husband. It started in her left arm and progressed rapidly over the entire body, with stiffening of all extremities, marked salivation, and eyes rolled up and to the right. It lasted for a short time, after which the patient was again conscious and oriented. She had no recollection of the convulsion and appeared somewhat somnolent. Her blood pressure right after the convulsion was '190/110 but rapidly returned to the preconvulsive high normal range. Within 20 minutes she had another more severe convulsion and in the next several hours four more seizures. She was given sodium amytal 200 mgm. intravenously, which lasted for about one hour, at which time it was necessary to repeat the dose. Intravenous calcium gluconate and intramuscular magnesium sulfate were tried without success. Intravenous dilantin also did not stop or prevent the convulsions; nor did a slow infusion of sodium lactate change the picture. For approximately the next 12 hours as the convulsions recurred at increasing intervals, we became better able to anticipate and prevent them by giving sodium amytal in 125 to 200 mgm. doses intravenously. Finally 17 hours after the first, and four hours, as the convulsions recurred at increasing intervals, and no more convulsion occurred.

Blood chemistries were studied several hours before and shortly after the onset of the convulsions. The electrolytes were not significantly abnormal. Serum magnesium and calcium levels were drawn shortly after the onset of convulsions and they also were in the normal range. Blood sugar was normal. An electrocardiogram was done and read as normal.

From this point on, the patient made good progress towards recovery and was discharged on 5-25-56, 15 days after admission and 12 days after her convulsive episode. During her hospital stay her weight dropped from 146 pounds to 131½. Her blood urea nitrogen was rapidly approaching normal and the rest of the blood chemistries were normal. Discharge hemoglobin was 11.2 grams.

She has been followed up since. A year later urine analysis showed an acid reaction, specific gravity of 1.016 and a negative albumin. Microscopic examination showed no red blood count, no white blood count, and

no casts. The blood urea nitrogen was 15.4. Her weight was 134 pounds and the hemoglobin 13.2 grams. Since her difficulty, she has had three more children; all were normal vaginal deliveries without any complications.

Table 1

Intake Output Record

	Oral	IV NaCl	Other IV	Total	Blood	Output
5-7-56	725	500	1000	2225	3000	200
5-8 to Noon 5-9 (36 hrs.)	3105	250	200	3555	500	260
5-9 to Discharge (28 hrs.)	1300		500	1800		120
5-10 Admission UMH (8 hrs.)	0		125	125	300	225
5-11	250		375	625	1700	522+
5-12	1000		0	1000		1525
5-13 Preconvulsion	?		0	?		1250
5-13 Postconvulsive	0		1300	1300		1540
5-14	0	300	1300	1600		2400
5-15	1750	1700	400	3850		3250
5-16	1140			1140		2645
5-17	1300			1300		1400
5-18	1275			1275		1825
5-19	1696			1696		2050
5-20	2270			2270		1950
5-21	2020			2020		1800
5-22	2540			2540		1600
5-23	2720			2720		2950
5-24	2495			2495		1900

Discussion

Initiating Factors

Acute renal failure is not a rare condition, nor is it a specific diagnosis. It can result from a multitude of insults upon the body and may be an acute and temporary condition. In obstetrics, it is usually caused by shock, transfusion reaction, premature separation of the placenta, or occasionally hypertensive toxemia.

The usual history in obstetrics is of a complication of pregnancy leading to blood loss and replacement with compatible or incompatible blood followed very shortly by a decrease in urine production. The oliguric phase may last one to 14 days or even longer. With proper care and management of fluid and electrolyte problems the patient eventually begins to excrete urine in increasing amounts. Though subjective improvement is very rapid, it usually takes months before the kidney regains its ability to produce concentrated urine.

The Cause of Convulsions

Convulsions during the diuretic phase have been reported by several authors.[1-6] Various causes such as calcium deficiency, sodium deficiency, and dehydration have been suggested. In several instances the convulsions occurred after peritoneal lavage, when electrolyte imbalance may have been present. Swan and Merrill[7] in their excellent monograph on acute renal failure state that a massive fluid and electrolyte shift is responsible. Water intoxication and low salt syndrome may also be a part of the picture.

Management of Renal Shutdown

The management of the oliguric phase requires extreme care. Allowing too much fluid is probably the greatest single danger, and death from pulmonary congestion is all too common. The fluid intake of these patients should be limited to the urine output plus the estimated insensible loss, which is usually estimated to be around 750 cc. except in very warm weather.[8] Usually the patient can take these fluids orally. Exact intake and output records must be maintained. It is well to place an indwelling catheter.

Hyperpotassemia

The second great danger is hyperpotassemia, which will develop in nearly all patients with acute renal failure if the oliguric phase lasts very long. This is due to the fact that potassium is not excreted by the damaged kidney and that nearly all diets contain large amounts of potassium. Furthermore, the breakdown of tissue in normal metabolism and the destruction of red blood cells release additional potassium in the body. Hyperkalemia is probably the most common cause of death. Some of the symptoms are anxiety, restlessness, sweating, muscular weakness, hypoactive reflexes, faint heart sounds, decreased blood pressure, and bradycardia. Hyperkalemia must be anticipated and prevented if possible. The best method of following the potassium level is with serum potassium determinations. Serial electrocardiagram recordings usually will also indicate impending danger.

If hyperkalemia is anticipated, it can be delayed and decreased in severity by several means. Potassium can be eliminated from the diet. A

Borst diet, which is mainly sugar and butter, given either as a soup or frozen "butter balls," is practically potassium-free, yet supplies caloric needs. Its taste is fair but the patient soon tires of it. Another means of controlling the potassium level is with the ion exchange resins which absorb and hold potassium and can then be eliminated from the body. These resins also absorb other electrolytes, and care must be taken when they are used. In the more severe cases of hyperkalemia more drastic measures such as peritoneal lavage and use of the artificial kidney can be carried out to keep the patient alive. Insulin to decrease body catabolism, and rest to decrease metabolism should also be considered.

Uremia

The blood urea nitrogen will gradually increase, because no tissue breakdown products are excreted, but the extremely high levels as seen in uremia are seldom reached. Any method of decreasing body metabolism will slow the rise. It is probably of value to point out that as the blood urea nitrogen continues to rise for a time even after the diuretic phase beings, the blood level should be followed at least until it is well on the way back down toward normal. This continued rise emphasizes the fact that though the kidney has recovered sufficiently to allow some passive filtrate to escape into the bladder, the tubular cell regeneration has just begun and the kidney is not yet in a position to do the active work of excreting body metabolites.

Anemia

Early in the oliguric phase the patient will generally run a low-grade fever, thought to be due to the original insult and not related to the kidney disease. Low-grade hypertension is a rather consistent finding during this phase. The patients are usually anemic, and this anemia may increase in the absence of blood loss. Generally it is felt however, that unless the anemia is profound, blood transfusion is not indicated because of the risk of further insult to the kidney, and because large amounts of intravenous potassium are thereby added.

The Diuretic Phase

The diuretic phase may be defined as starting when the daily urine output exceeds 400 to 500 cc. per 24 hours. This stage is usually accepted as the turning point in this syndrome, and thereafter the patient improves rapidly. However, as

Table II

Laboratory Data

	Blood								Urine			24 hour urine output meq/l.		
	HBG	RBC	BUN	CO2	Na	Cl	K	Sp.G.	ALB	RBC	WBC	na	Cl	Wght
5-9-56	8.8	3.0	14.4											
5-10 Admission UMH (8 hrs.)	5.5	3.2	80		140	94	5.7	1.008	1	occ	occ.			146½
5-11	9.1		86	29	138	92	5.1	1.007	1	2	occ.			
5-12	10.7	3.5												
5-13 Preconvulsion			119	19	141	89	5.6							
5-13 Postconvulsion			91	31	146	93	4.8	1.007	tr.	occ	occ.			
5-14			90	25	147	100	4.6					98	46	
5-15	11.1											94	38	
5-16			57	24	147	104	4.3	1.007	tr.	occ.	occ.	94	43	
5-17												?	46	136
5-18												74	41	133
5-19			24	24	144	109	5.1					62	41	130
5-20												44	29	129
5-21	11.8											44	31	128½
5-22			34	25	138	106	4.8	1.005	0	0	occ.	30	?	129½
5-24	11.2		26	28	150	108	4.8							131½

Table II shows the blood chemistries. These are in milliequivalents. Other laboratory work done shortly after the convulsion started as follows: Serum Magnesium — 2.9 mq/l, serum Ca-7.5 mq/l, blood sugar 135, total protein 5.7, with albumin 3.0 and globulin 2.7.

pointed out by Swan and Merrill, 25% of the deaths in their series occurred after the diuretic phase began; therefore it must be reiterated that though the kidney is putting out increasing volumes of passive filtrate, this is in reality not urine, and that the serum potassium level, the blood urea nitrogen, and other blood chemistry levels continue to rise for varying periods of time after the diuretic phase begins, which may be for several days or weeks. It is necessary to continue to follow closely the serum potassium, the blood urea nitrogen, and other electrolytes, and to treat accordingly.

Fluid intake should still be controlled by calculation, measurement, and body weight observation. Salt intake must continue to be curtailed. It is to be expected that these patients will lose weight rapidly during this phase, but for the most part this is water loss, which carries with it large quantities of sodium and chloride. Hyponatremia and hypochloremia may therefore occur. Massive electrolyte and fluid shifts must take place between body compartments and are believed to be the reason for the convulsions in the diuretic phase. The exact etiology of the convulsion in this case and of convulsions in general is not yet understood, but experimental evidence by some investigators supports the belief that fluid and electrolyte shifts play a role.[9]

Summary

As the diuretic phase continues, the output gradually assumes the general characteristics of normal urine. Over months the specific gravity increases to normal. The red blood count, white blood count, and casts in the urine gradually disappear. A low-grade fever may occur late in the diuretic phase and last for several weeks. As stated before, these patients should be followed fairly closely for some time even after discharge, because the kidney does not totally recover function for six to twelve months. If the patient's urinary output is increasing and her general condition is satisfactory she survives the convulsive episodes without evidence of further damage and goes on to recovery.

A short summary of the literature shows that such convulsive episodes constitute an occasional complication of acute renal failure, though not necessarily a bad prognostic sign.

The authors wish to thank Dr. E. B. Flink, of the University of West Virginia, then at the University of Minnesota, who saw this patient in consultation and who assisted with her management.

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ANSWER TO WHAT'S YOUR DIAGNOSIS

(From page 639)

On the third hospital day, the patient was eating well and was asymptomatic except for very minimal nausea. He was cooperative and calm, a review of the history disclosed that he had eaten a hamburger with onions and mustard about fifteen minutes to one-half hour prior to the onset of the pain. Skin tests for mustard and onions showed no reaction. That evening (April 18), he was given a meal of hamburger, onions and mustard. A few minutes later, he devoloped extremely severe abdominal pain and physical findings similar to those he had on admission. It was then apparent that he had an allergy to mustard. He was given one cc. of intramuscular adrenalin which provided dramatic and immediate relief of pain and the physical findings. He was discharged the following morning asymptomatic but wiser. Diagnosis: Pseudo-cholecystitis.



Fig. 1*a*. and *b*. Fifteen-year-old girl with hypertrophy of left breast.

Pubertal Hypertrophy of the

THE DEVELOPMENT of the juvenile female breast from adolescence to adulthood is usually uncomplicated; in rare instances, however, the pubertal breast enlarges rapidly and becomes massive. Cases of this type have been reported as "virginal hypertrophy," "macromastia," and "gigantomastia," to denote the enormous dimensions of the mammae. Such breasts become pendulous, the superficial veins are engorged and prominent, and the mammary tissue is edematous; histologically, fibrous tissue is greatly increased. The enlargement is irreversible and serves as a constant source of embarrassment to a girl in her teens. Not only is the size of the breasts objectionable esthetically, but the patient is unable to wear items of clothing worn by girls with normal breasts.

One of the earliest cases of excessive pubertal mammary hypertrophy in the literature is recorded in a letter published by Durston[1] in the *Philosophical Transactions* in 1699. He describes a 24-year-old girl whose breasts were so large that "she could not rise from her bed." Sporadic cases have been reported in the literature since that time.[2-8]

Normal Mammary Development

Adolescent enlargement of the breast usually

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Fig. 1 *c*. Postoperative appearance 12 days later. Deformity of nipple and areola made satisfactory transplantation difficult.

Breast: Report of Three Cases

begins between the ages of nine and 13 years, depending on hereditary influences, individual variation, and other factors. Steiner[8] divides this physiologic process into three stages: (1) bud stage, which is characterized by elevation of the areola and embedding of the papilla in a small conical protuberance on a flat chest; (2) primary stage, in which infiltration of fatty tissue occurs with further elevation of the areola; and (3) secondary or mature stage, in which more fat is deposited in the breast with elevation of the nipple and development of the ductal system. It is not abnormal for one breast to enlarge before the other or to attain a different size. Pubertal mammary enlargement goes on until the breasts reach adult proportions; this developmental process, however, may occasionally be associated with pain, redness or striae surrounding the nipple.

The important role played by ovarian hormones and certain pituitary factors in breast development is well established; estrogens applied topically to the breast or given orally stimulate its growth. There is no evidence that estrogens produce excessive development; on the contrary, estrogens administered to both males and females increase the size of the breast to about that of the mature female breast.

Pathologic Mammary Enlargement

Massive hypertrophy begins as would normal adolescent enlargement between the ages of nine

and 13 years, usually preceding menarche by several months. Unlike normal development, however, the increase in size is rapid, sometimes as much as a pound of weight per week. The process is often bilateral; but if one breast is much larger than the other in such cases the smaller breast may appear unaffected. The enlargement may stop spontaneously at any time or the breast may continue to grow to enormous size, cases being reported in which the gland weighed 25 to 35 pounds.[10,11] When such size is reached, the mass of breast tissue hangs by a narrow pedicle, venous obstruction is not uncommon, and stasis ulcers in the overlying skin may occur. Occasionally, the downward pull of this large mass of tissue causes back pain or kyphosis. Above all, the cosmetic effects of excessive mammary hypertrophy are most disabling.

Report of Cases

Case 1.

A 15-year-old white girl came to the Mayo Clinic mainly because of marked hypertrophy of the left breast (Fig. 1). Her history was one of normal growth and development; her menses started at age 12 years, and normal development of the breasts began at about the same time. At age 14 her left breast enlarged rapidly over a period of five or six months and became red and tender. Biopsy performed nine months before she came to the clinic revealed "virginal hypertrophy of the breast." She was given "hormones" by her family physician without significant results. The breast continued to grow slowly. Physical examination at the clinic revealed an excessively large left breast with a moderate amount of superficial lymph stasis. The breast was rather firm and finely nodular. Mammaplasty was performed. After removal of all the breast tissue, a mammary prominence was constructed from flaps of skin and fat and onto this the nipple was transplanted. The surgical specimen weighed 1701 gm. The pathologist reported that it represented "virginal hypertrophy of the breast."

Case 2.

A 19-year-old white girl (Fig. 2) was first brought to the Mayo Clinic at age four years because of diabetes insipidus secondary to xanthomatosis involving the pituitary region. The diabetes insipidus was controlled with pituitary extracts while the xanthomatous granuloma regressed with X-ray therapy. Subsequently, granulomatous lesions of the skull, mandible, scapula, ribs, ilium, and femur were treated successfully. At age 12 years her breasts began to enlarge equally and symmetrically. At age 13 the right breast suddenly began to enlarge rapidly, this growth continuing for six to eight weeks and then stopping abruptly. Irregular menses began at age 14. When she was seen at the clinic the right breast was much larger than the left, but otherwise her development and secondary sex characteristics were normal. At age 19 the left breast had reached a mature size while the hypertrophied right breast had not enlarged significantly since its period of rapid growth. On this admission, a reduction mammaplasty was performed, with removal of all the breast tissue and transplantation of the nipple.



Fig. 2 *a*. Nineteen-year-old girl with marked hypertrophy of right breast. Front view.

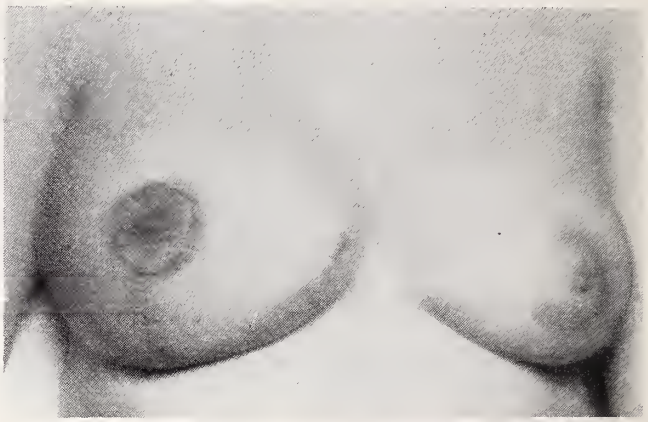


Fig. 2 *b*. Appearance two weeks after operation.



Fig. 2 *c*. Same patient, side view before operation.



Fig. 2 *d*. Same patient, side view after operation.

Case 3.

A case of marked bilateral pubertal hypertrophy of the breasts (Fig. 3), in a 13-year-old girl, was reported previously by one of us (J.B.E.).[2] In brief, her breasts were so large that she could not wear dresses but had to wear loose-fitting blouses to hide them. All the breast tissue was removed, mammary prominences were constructed from flaps of skin and fat, and the nipples were transplanted to proper position.



Fig. 3 *a*. Thirteen-year-old girl with massive hypertrophy of both breasts, especially on left side.

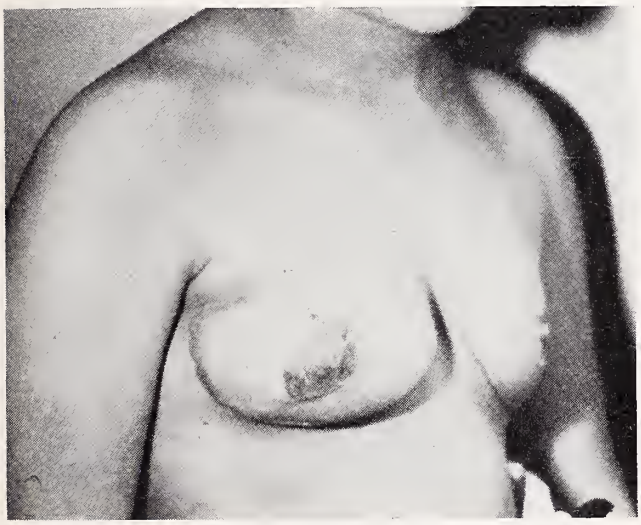


Fig. 3 *b*. Appearance several months after operation. Fairly good result marred by development of keloid along each incision in submammary fold.

Etiology

The etiology of massive pubertal hypertrophy of the breast is obscure. Histologically and etiologically it has been related to primary gynecomastia as observed in males.[12] It is reasonably certain that the sex hormones play an important role in its production, but that role has not been demonstrated. No hormonal or endocrinologic disturbance has been observed in any of the reported cases. The disease, however, does occur at puberty when the body is under the stress of many hormones, particularly the growth and sex hormones. This is also the stage at which gynecomastia most often develops in males. The condition known as massive gravid hypertrophy likewise occurs when the body is under the influence of increased circulating hormones. As noted previously, an excess of estrogens alone does not produce abnormal mammary enlargement; also enlargement does not occur when estrogens are administered to pituitectomized animals, which indicates that a pituitary factor is involved. We may theorize that the excessive hypertrophy is the result of a complex disturbance of the pituitary, ovarian, and adrenal hormones, or perhaps that a defect in the growth receptors in the breasts renders them more susceptible to normal hormonal stimulation.[13].

Treatment

Hormonal therapy for pubertal hypertrophy has been unsuccessful. The pathologic growth of the breast, which begins insidiously and progresses rapidly, usually stops spontaneously within a few weeks, thereby making the usefulness of hormones hard to evaluate. Moreover, there have been no reports that the breast decreases in size once it has stopped growing.

If the growth has been symmetric and not entirely out of proportion to the general habitus of the individual, obviously treatment is not needed. When the breasts are asymmetric and the patient is still in her growth period, it is always possible that the smaller breast will enlarge and make the difference between the two breasts less noticeable.

When breasts are excessively large and surgical treatment is indicated, two technics can be considered. The first, simple mastectomy, is especially useful in those cases in which chronic venous and lymphatic stasis with ulceration render the overlying skin unsuitable for plastic reconstruction. The second, reduction mammaplasty, provides a more satisfactory cosmetic result than does mastectomy. Since these patients with marked mammary hypertrophy are girls in their late teens, the esthetic results of treatment are as important as any other factors.

Surgical attempts to reduce the size of enormous mammae by excision of large portions

of breast tissue result in loss of most of the lactiferous gland. Under such circumstances it seems advisable to sacrifice all the glandular tissue rather than to leave small portions which would be useless so far as lactation is concerned and which possibly could undergo malignant change. For massive virginal hypertrophy of the breasts it seems advisable to remove surgically all the glandular tissue, to prepare mammary prominences from flaps of skin and fat, and to transplant the nipples. Very presentable breasts can be constructed in this manner; the result is far superior to that of simple amputation of the breasts with the resultant disfiguring scars and deformity. The technic employed in the three cases presented herein (Fig. 4) was similar to that described by Maliniac.[14]

The Technique

Transplanting the Areola and Nipple

With the patient under general anesthesia, a circumferential incision is made around each areola; the nipple and aerola then are removed with a scalpel as would be done in the dissection of any full-thickness skin graft, care being taken not to leave any fatty tissue on the undersurface of the graft. The site of the areolar incision measures about three to four cm. across.

Breast Tissue Discarded

After dissection of the nipple and areolar

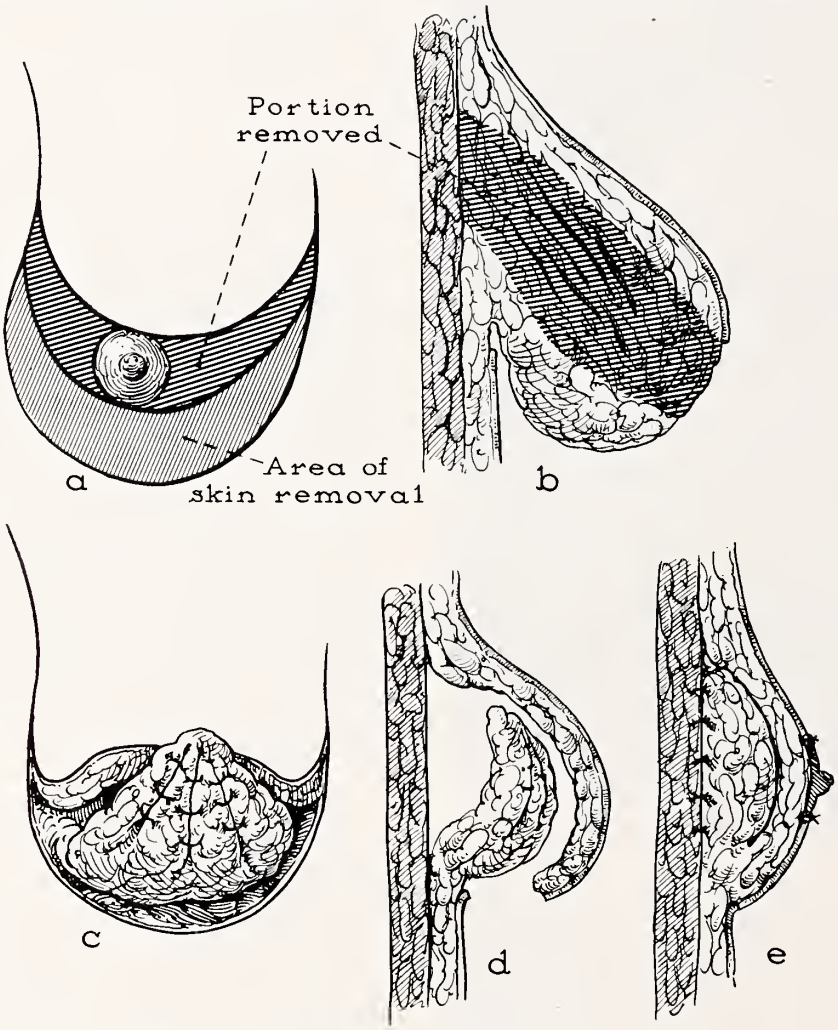


Fig. 4 *a* and *b*. Total excision of mammary tissue through an incision just above or just below areola (see text) so that superior and inferior flaps of fat remain. *c*. Lower flap of dermis (epidermis has been removed) and fat is gathered together in vertical folds to form a central prominence and then is tacked down with chromic catgut sutures to wall of chest under anterior apron flap of skin and fat. *d*. Lateral view illustrating how lower flap of fat and dermis is turned upward and under apron flap of skin and fat. *e*. Lower flap has been attached to anterior wall of chest with chromic catgut sutures. Anterior flap has been sutured to skin along submammary fold, and nipple and areola have been transplanted and sutured down in proper position on reconstructed breast.

graft, an incision is made just above or more often just below the areola from the mesial to the lateral extremities of the submammary fold (Fig. 4*a*). An apron flap of skin and fat is elevated above this incision on the anterior surface of the breast. Whether to outline the incision above or below the areola depends on the size of the breast and the desired length of the apronlike flap in a vertical direction. Similarly, a flap of skin and fat is also elevated on the undersurface of the breast below this incision. Between and under these flaps the mass of breast tissue is dissected free from the underlying pectoral fascia and is discarded.

Reconstruction of Mammary Prominence

The mammary prominence is reconstructed by turning the lower flap of skin and fat up under the anterior flap. Before the lower flap is buried under the anterior pedicle, the entire lower flap down to the submammary fold is de-epithelized by dissecting off the epidermis with a scalpel. The lower flap of fat and dermis then is turned upward and can be gathered in vertical folds to form a central prominence which is tacked down to the pectoral fascia with chromic catgut. The anterior flap is then brought down to cover the lower flap and is sutured along the submammary fold. Regardless of whether the primary incision is made above or below the areola, the free edge of the upper flap is longer than the superficial incision in the submammary fold. Consequently, a wedge of skin is cut away from the free edge of the upper flap in the region of the areola to make this edge about equal in length to the submammary incision. Suturing thereby can be carried out without any puckering of the lower edge of the sutured wound.

On each reconstructed breast an appropriate site for the nipple and areola is selected and outlined with a skin pencil. The skin within this circular area is removed to make a fenestration opening into which the areolar and nipple graft is inlaid. The silk sutures that anchor the graft in place are left long and are tied over fine-mesh gauze sponges for immobilization of the graft. Fluff sponges are placed over the breast and held in place with a roller elastic bandage around the chest. On the sixth postoperative day all the dressings over the breasts and nipples are removed.

Summary

Occasionally one or both female pubertal breasts undergo massive enlargement. The breast becomes pendulous, the superficial veins engorged and prominent, and the mammary tissue edematous. Not only is the size of the breasts objectionable but the patient is unable to wear items of clothing worn by girls with normal breasts. The authors report three cases in which excessive enlargement was treated surgically and discuss the etiology and treatment of the condition.

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By a small sample may we judge the whole piece.—Cervantes

Saint Barnabas

Barnabas, "a good man, and full of the Holy Ghost, and of faith" (Acts 11:24), lived in the first century and was associated with Paul the Apostle (earlier known before his conversion as Saul the Persecutor). Together, the two men were distinguished for an eminently successful missionary campaign among the Greeks at Antioch and elsewhere.

Barnabas' given name was Joses or Joseph; but he was surnamed Barnabas (Son of Consolation or Exhortation) by the apostles, of whom he was one of the 72 but not one of The Twelve. His story is told in The Acts, which present him as an appealing and warmly-human figure, in contrast with the coldness of many Biblical characters.

In Acts 4 we read that when the apostles convened to plan and organize their mission work, they pooled their resources to finance their operations.

When the apostles scattered on their subsequent assignments, Barnabas and Paul were sent to Antioch to investigate a report that the Greeks there were listening with interest to the preaching of Peter to the Jews in that area. Encouraged by Peter's success, Barnabas and Paul remained to contribute their evangelistic efforts to the cause.

Later from Cyprus they journeyed on to many other places, spreading the word of Christ as they went, and finally returning to Antioch, their home base, where they promptly became central figures in a crucial controversy over the doctrinal issue of circumcision.

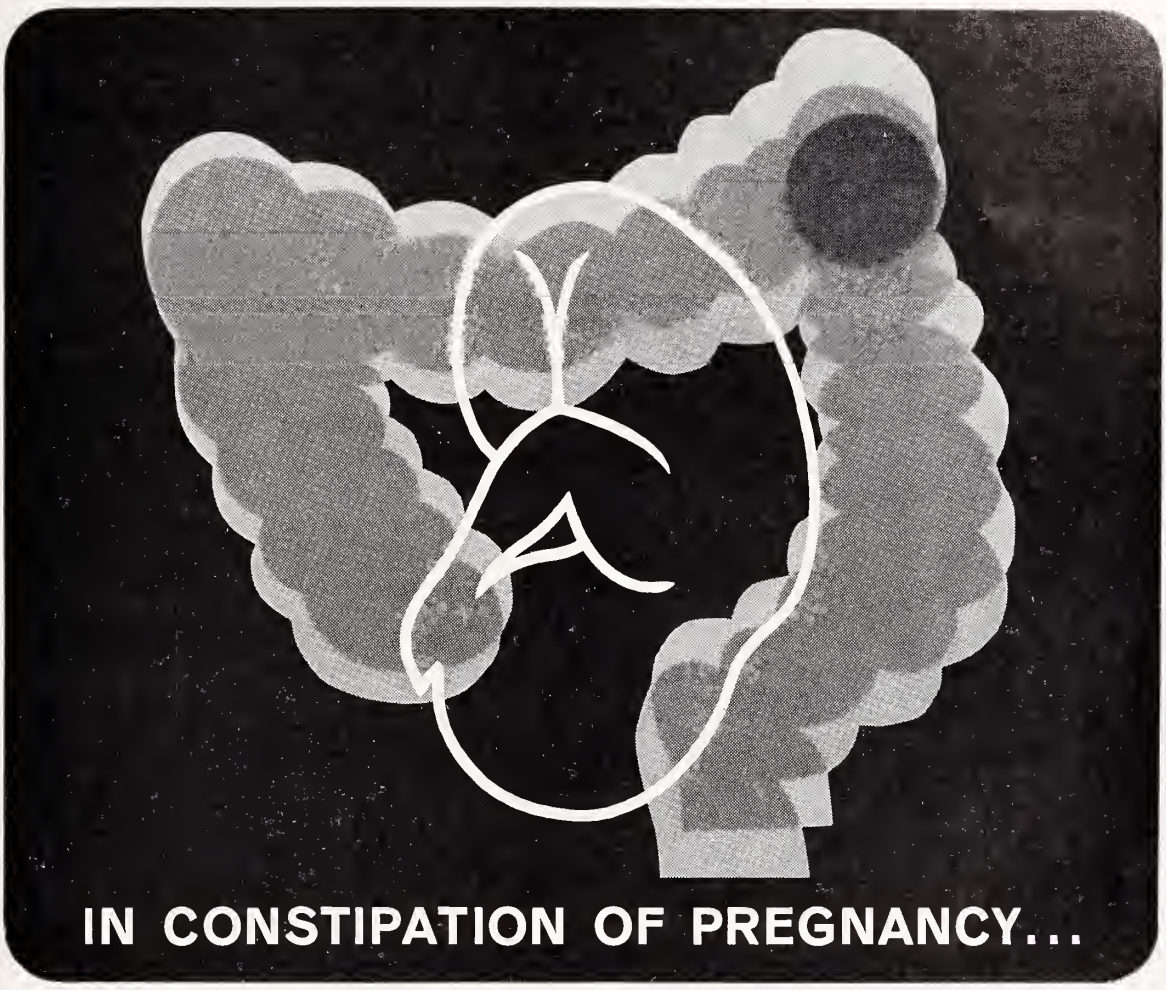
"And certain men which came down from Judaea taught the brethren, and said, 'Except ye be circumcised after the manner of Moses, ye cannot be saved.'
When therefore Paul and Barnabas had no small dissension and disputation with them, they determined that Paul and Barnabas, and certain other of them, should go up to Jerusalem unto the apostles and elders about this question." (Acts 15:1-2)

Both Barnabas and Paul had previously declined to order the Greek Gentiles to be circumcised, as they feared that such a decree would be fatal to their work, as it well might have been. The outcome was that Peter, as God's spokesman, upheld Barnabas and Paul in their stand against coercing their Gentile converts to be circumcised; he said that it was enough in God's sight that they had heard the Word and believed.

Some years later, separating from Paul and with Mark as his companion, Barnabas left Antioch to work in Cyprus, after which time his movements are obscure and he virtually vanishes from apostolic history. Unsubstantiated reports, however, indicate that he was martyred at Salamis by burning and stoning.

St. Barnabas is conventionally represented as bearded, middle-aged, tall and handsome, holding a book and an olive branch. He is invoked against hailstorms and as a peacemaker.

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EDITORIALS

The Foodic

"EVERYTHING I eat turns to fat." "I just don't eat a thing." "I'm on a diet, but it doesn't do a bit of good."

How often we hear these pronouncements and how fallacious we know them to be. They are in the same category with those of the alcoholic, who will readily admit to "a couple of beers" but conveniently forget or vehemently deny the furtive eye-opener, the 4:00 o'clock pepper-upper, the doubles, or the clandestine swig.

The foodic, be he man or woman, like the alcoholic is often beset with a problem, a frustration, a worry, a discontent. Food instead of fortitude is his crutch.

True, he may count calories; he may conscientiously estimate his mealtime intake, but invariably neglect to include the multitude of in-between nibbles and snacks. Each year he resolves to take himself in hand, but the tempting sight of a calorie-laden pumpkin pie with topping, or a mouth-watering chocolate fudge cake with a glossy, rich frosting shatters his bold but feeble resolve and shoves it irrevocably day by day into the never-never time zone of the future. Inexorably, each year adds a few more pounds to his bulk.

The foodic is a hail-fellow-well-met, hiding his frustrations; with a plump body and a full, pink face indicative of his hypertension; his clothes don't fit him right; they are either too tight or too loose, according to the swing of his dietary pendulum.

Sometimes the foodic's bulk is evenly distributed but more often he thickens around the middle. Then there is the occasional foodic on whom the bulk concentrates relentlessly in one spot—his belly; and finally there is the foodic who just bulges here or there in a nondescript way with no discernible pattern in evidence.

His acquaintances and friends meeting him dare not speak of his health even jokingly or casually lest they find themselves on the wrong side of the complimentary ledger or off the popularity register.

The foodic's intentions are good, but when can he start to reduce? In the fall of the year, with Thanksgiving, Christmas, and New Year's turkeys, hams, and plum puddings in the offing, why begin a starvation diet then? The day after New Year's will be the most logical point of departure. But before the foodic's diet train is well under way, the spring festivals roll around, and the annual banquets and birthday dinners begin to dot the calendar. Finally summer arrives with those irresistibly delectable outdoor picnic spreads and backyard barbecues. Before the foodic realizes it, fall has returned and to his chagrin he is toting around more rather than less poundage on his

Continued

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frame. "Oh well, there is no stigma to a hearty appetite. As a matter of fact, status is enhanced by attendance at special lunches and dinners, and by familiarity with the gourmet restaurants and nightclubs about town."

On the grounds of physiology, the foodic may convincingly and glibly argue about the need for blood sugar and the requirements of basic nutrition, quoting from some doctor's syndicated column where he has found indisputable evidence in printer's ink for the obligatory, daily consumption of 40 grams of protein, three glasses of whole milk, one egg, one ounce of vegetable oil, one orange, one apple, a half head of lettuce, and a handful of raisins—minimum requirements in addition to and not in lieu of the gustatory portion of the meal. Thus the foodic justifies himself in eating a hearty meal three times a day. Diet control can wait until another day when he isn't so hungry or doesn't need so much energy.

Like the alcoholic, the foodic is constantly in conflict with himself, always in search of new excuses: "I have a glandular condition." "I gotta keep going." "I eat like a bird."

* * *

Has anyone ever reminded the foodic that most birds eat nearly all day long, and that many birds eat at least half their weight in food daily?

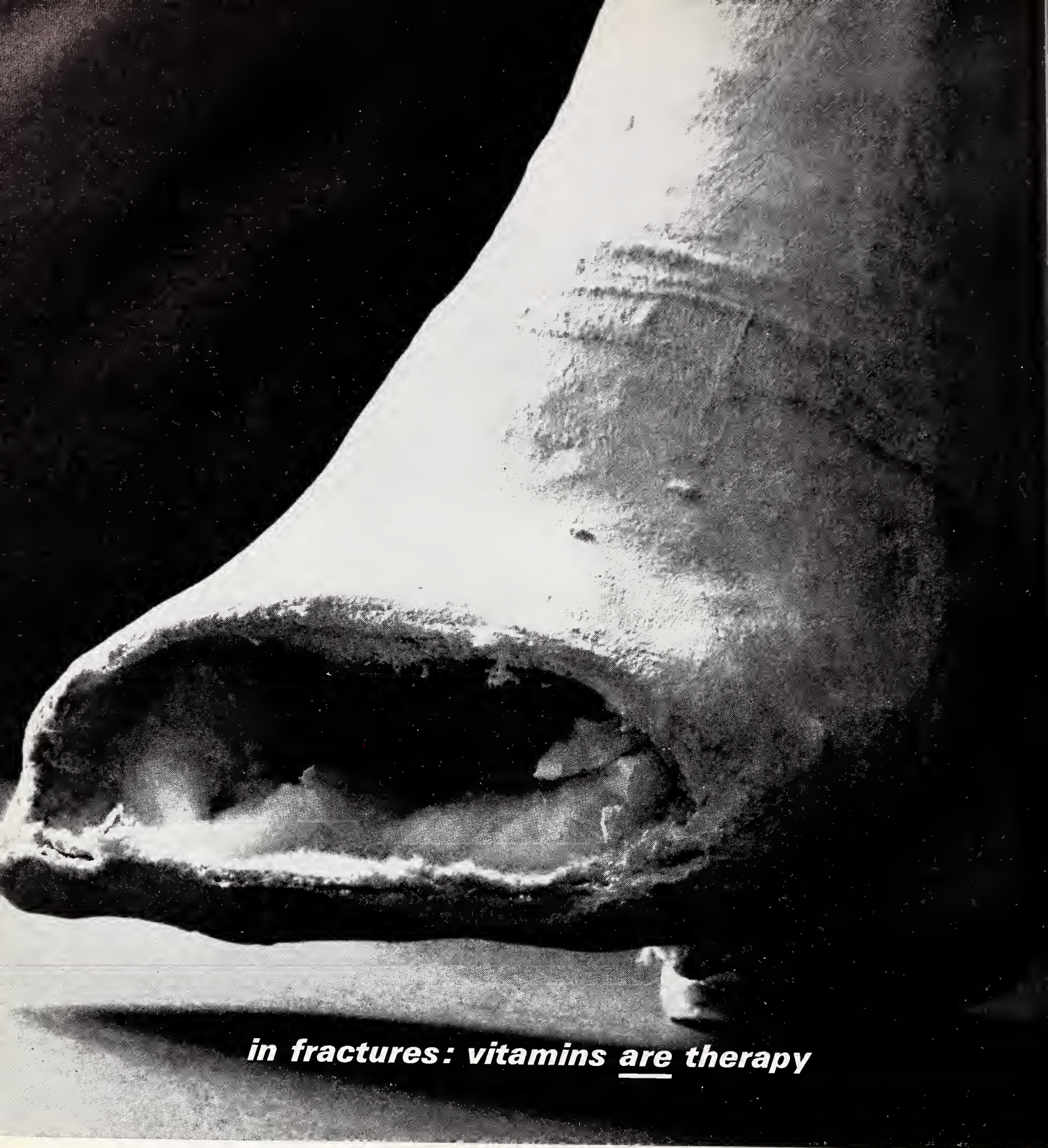
Carl O. Rice, M.D.

Early Carcinoma of the Cervix

THERE IS no doubt that the Papanicolaou smear technique has been of great benefit in the detection of early carcinomas of the uterine cervix. The application of this technique at regular intervals during routine examinations has probably been the greatest advance in cancer detection in the female during the past decade. A recent study by Paloucek (Am. J. Obst. & Gynec. 86: May 15, 1963) demonstrated that the prevalence of cervical malignancies has increased in the last 15 years. "In situ" carcinoma has tripled in the last ten years in New York exclusive of New York City. Deaths due to uterine cancer however have decreased by 40 per cent and the incidence of invasive cervical carcinoma has decreased by 20 per cent. The main reason for the decrease in the more advanced cervical tumors and deaths from uterine malignancy is the widespread use of the cervical smear technique.

Included in this issue of "Minnesota Medicine" are two papers dealing with the problem of diagnosis and treatment of early squamous cell carcinoma of the uterine cervix. The experience at the Mayo Clinic parallels that of the state of New York; the incidence of early detection and diagnosis of cervical malignancies has markedly increased. More "in situ" cancers and less invasive tumors are being discovered since the smears detect malignancies in the preclinical and pre-invasive stage. Few institutions, however are prepared to process tissue specimens removed in the operating room with the fresh-frozen technique as described. This is not practical in most hospitals nor is it necessary. Speed of diagnosis is not the ultimate goal in the selection of proper therapy. Accuracy is far more important, and cannot be sacrificed for speed. The only real disadvantage in waiting for permanent paraffin sections to be reviewed with care is the slight delay in definitive therapy.

Most pathologists are able to render a decision on the presence or absence of cervical stromal invasion by tumor within 24 hours from the time the cervical cone is removed. The patient may be scheduled for hysterectomy 48 hours from the time of the initial surgery. That this may produce tension and anxiety in the patient cannot be denied. However, this does not seem to be a major problem. Infection in the parametria is no problem provided the delay between cone and definitive surgery is not too



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great. If an accurate diagnosis cannot be established within 48 hours, it is best to allow four to six weeks to elapse before hysterectomy is attempted. A second anesthetic is perhaps not desirable, but it seems far more serious to perform inadequate surgery in the face of questionable invasion of the stroma than to have the patient undergo another general anesthetic.

Many physicians would prefer to perform a Sturmdorff type tracheloplasty for hemostastis rather than to use cautery. This produces a normal appearing cervical portio which will heal rapidly and without a delayed secondary hemorrhage. The use of local antiseptic vaginal medication following conization also tends to promote healing. A curettage should always accompany a conization procedure for the occasional patient who may exhibit a multicentric cancer or an adenocarcinoma of the endometrium. The presence of this condition will influence the surgeon in planning a definite surgical procedure.

The mode of therapy of early carcinoma of the cervix has not been definitely established at the present time. There are those who advocate simple, total hysterectomy either abdominally or vaginally with the preservation of ovaries. Others favor either a radical Wertheim hysterectomy or long-focal distance X-ray therapy followed by radium. Simple hysterectomy has many more advocates and is probably performed by most physicians when confronted with "in situ" carcinoma. In a recent study, Song (Arch. Path. 75:1, Jan., 1963) demonstrated the presence of lymphatic metastasis of "in situ" cervical cancer deep within the cervical stroma and also local lymph node metastasis in cones where the epithelial changes remained "in situ" and where no obvious malignancy was present below the basement membrane. The total number of cases with lymphatic vascular and lymph node metastastis was small, it is true, but if "in situ" carcinoma is capable of metastasis then simple surgical procedures are inadequate.

It has often been stated that the morbidity associated with X-ray and radium is too great to warrant their use in "in situ" malignancies. This is simply not so if proper precautions are taken. The preservation of ovarian function is unimportant compared to the risk of not destroying local nodal spread with irradiation to the pelvis. Simple surgical procedures do not always remove local spread; irradiation therapy seems more likely to do so. There is serious doubt that loss of ovarian function increases the probability of the premature development of atherosclerosis. Even if this were subsequently shown to be the case, hormonal estrogenic replacement is available. The surgeon need not be hesitant about destroying ovarian function when dealing with early squamous cell carcinoma of the uterine cervix. The decision to use the surgical approach in the treatment of this condition should not be made on the value of the ovarian hormones but rather on the adequacy with which the primary tumor can best be irradicated.

Fred A. Lyon, M.D.
Minneapolis, Minn.

Nineteen Hundred and Thirteen

THE STATE pays homage to the 25 Minnesota physicians who this year have completed 50 years in the practice of medicine. They now have become members of the exclusive 50 Club. Their biographies are sketched in this issue of Minnesota Medicine.

Ninteen-thirteen, the year they began practice, was uncomplicated by war and uncluttered by such nuisances as state income taxes. The federal income tax, authorized by the sixteenth amendment, was but a mote in the eye: a one percent levy. Woodrow Wilson succeeded Howard Taft that year, although Minnesota's electoral votes were cast for the Bull Moose candidate, Theodore Roosevelt. Knute Nelson was senior senator, the last to be elected by the state legislature. Eberhard was governor.

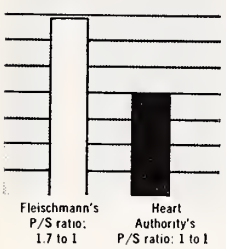
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*"The Regulation of Dietary Fat," Council on Foods and Nutrition of the American Medical Association. J.A.M.A., Vol. 181, No. 5 (August 4, 1962).

In the president's chair at the University of Minnesota sat George Vincent. His medical school dean was Elias P. Lyon, who spent little time in the deanery and carried a large share of the teaching load in physiology. Affiliation of the Mayo Clinic at the graduate level was still but an idea in the minds of Vincent, Lyon, and Mayo brothers, and a few others. State medical news for the previous thirteen years had appeared in the ponderously titled "Journal of the Minnesota State Medical Association and Northwestern Lancet" It was not until five years later that a journal wholly owned by the state medical association, Minnesota Medicine, published its first volume.

The American Medical Association met in the Twin Cities in 1913 motivated to come here by completion of the wonderful new anatomy building where scientific exhibits were held. Frank C. Todd was local chairman. The papers were given in the Minneapolis Auditorium at 11th and Nicollet. Leafing through the pages of volume 33 of Journal Lancet (1913) we find a report of Gustav Schwyzer concerning bowel obstruction from a large gallstone; Russell D. Carmen left Washington University, St. Louis, where he had been in charge of X-ray work to head the same department at the Mayo Clinic; Dr. A. B. Ancker of the City and County Hospital, St. Paul, had served the city 30 years on August 13, 1913, "and no one can gainsay his long service is based upon efficiency."

Lumbering was still an important Minnesota industry; on every river could be seen rafts of massive logs floating down to the sawmills. At the Metropolitan Theater one of the plays presented was Kismet starring Otis Skinner; at the Gayety appeared George P. Murphy and the Broadway Girls. In 1913 Walter P. Johnson pitched a record 56 consecutive scoreless innings. Philadelphia (AL) defeated New York (NL) in the world series in five games. Chicago, under Alonzo Stagg, defeated Minnesota (H. L. Williams) 13 to 7. That night there was a riot in downtown Minneapolis and police reported one man, a local citizen, with a fractured skull. Such was the nature of football celebrations in those days!

Pollyanna, by E. H. Porter, was published in 1913. The Vernon Castle dance team made its debut that year and dominated the style of dancing for the decade to follow. Henry Ford adapted the meat packers' conveyor belt to his peculiar needs and mass-produced the model T, selling that year for $600.00. Most doctors in 1913 still made their hospital and home calls in a buggy behind a horse or team. Such transportation sufficed for many doctors but older physicians, no doubt advertised their success in such vehicles as Kisselkars or Chalmers Roadsters; they were the avant garde.

At Yerxa's Grocery sirloin steak was 15 cents a pound. New York Central closed at 95¼, and Twin City Lines at 104; May wheat was quoted at 86 cents: Women's black shoes with broadcloth tops and sixteen buttons retailed at $2.95. The year 1913 epitomized the era of "the good old days."

Through experience and insight these gentlemen have attained the wisdom of maturity. They have seen many of the currently popular innovations in medicine come and go, some of them to return again. They have deliberately and discreetly forgotten much that we never knew. In this short long time they have relearned their medicine with us through a momentous and almost precipitate era of geometrically progressing advance in the field of science.

We know their names because we have seen them around for a long time. That they do not know our names is not a failure of their memories, but a failure on our part to observe the common courtesy of proffering our names as we shake their hands. We compliment these distinguished gentlemen, these pillars of our profession. They are noble examples for us to follow.

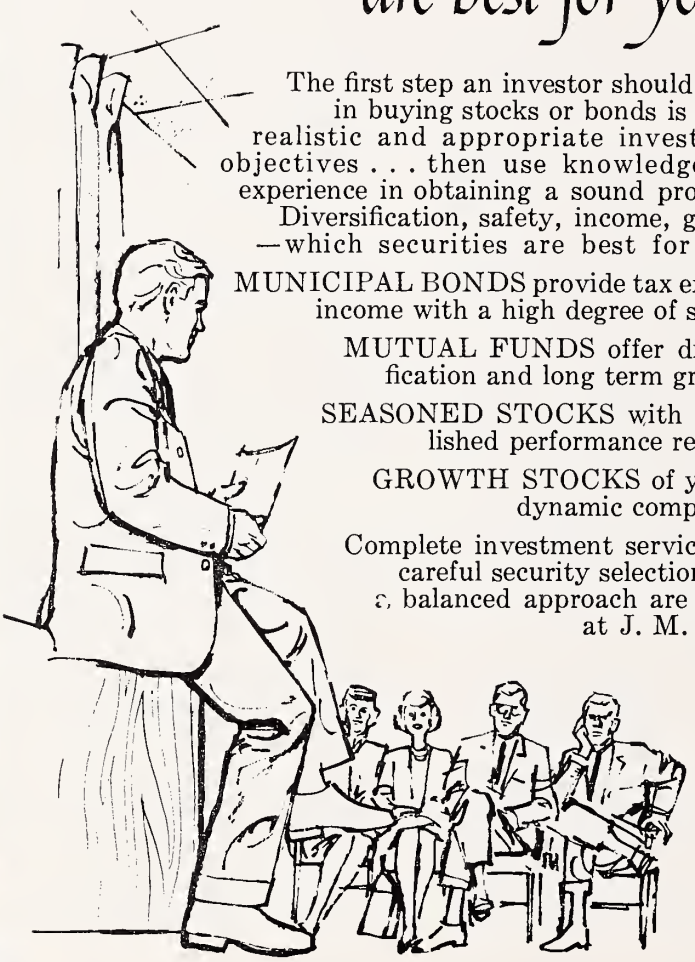
Reuben Berman, M.D.
Minneapolis, Minn.

They do certainly give very strange and newfangled names to diseases.—Plato

---

The difficulty in life is the choice.—G. Moore

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Fifty Years of Honorable Service In Minnesota



The presentation of certificates and pins to Minnesota physicians who have engaged in the practice of medicine for 50 years has become an impressive highlight of each Annual Meeting. According to custom the presentations are made during the course of the Annual Banquet. Few who have witnessed these ceremonies soon forget the setting of such an occasion at which these colleagues with a half century of medical practice to their credit so alertly respond to the roll call.

The custom of honoring Minnesota physicians who have served their patients and communities for a half century was established in 1942. Forty-one physicians were honored at the first ceremony. This group also included those who have passed the 50 year mark prior to 1942.

To be eligible for this award a doctor must have spent the majority of his 50 years practicing medicine in Minnesota.

In 1963 25 doctors were added to the membership rolls of Fifty Year Club.



H. W. Arndt, M.D.

Dr. H. W. Arndt of Detroit Lakes was born on October 12, 1888 at Lamberton, Minnesota, and is the son of a minister. After attending Fergus Falls High School he entered Northwestern University at Chicago, graduating from the medical school in 1912. He practiced for two years in Paynesville, Minnesota, and then served in World War I, reaching the rank of captain in the medical corps. After the war he located in Frazee, Minnesota where he owned and operated a private hospital for 13 years. In 1937 he moved to Detroit Lakes where he is still practicing. One of his sons, Dr. Jerome Arndt, is a physician in Dallas, Texas.



A. T. Baker, M.D.

Dr. Alfred T. Baker of Minneapolis was born at Ida Grove, Iowa on May 25, 1884. He lived his early life in the state of Washington, graduating from Centralia High School in 1905.

Being the son of a physician, he followed in his father's footsteps, sharing some of the experiences with him even before he entered medical school.

After teaching for a while to earn money he went to Chicago College of Medicine and Surgery, graduating in 1912. He served his internship at the Washington Park Hospital in Chicago.

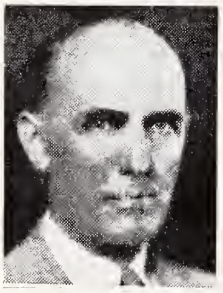
While visiting his father's friend and partner, Dr. George Eitel, on his way through Minneapolis, he changed his plans and stayed — as house doctor of Eitel Hospital and later as Dr. Eitel's assistant. He matriculated at University of Minnesota, receiving his B.S. and M.D. degrees in 1918.

Dr. Baker was one of the six original members of the closed staff of Eitel Hospital. He continued in private practice until 1954 when he retired because of illness.



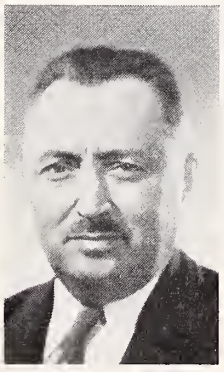
O. Bergan, M.D.

Dr. Otto Bergan was born on April 16, 1884. He received his B.A. degree from St. Olaf College in 1908 and studied medicine at the University of Minnesota, graduating in 1912. After a year of internship at Minneapolis General Hospital, he located in Everett, Washington. After practicing there for one year he moved to Clinton, Big Stone County, Minnesota in 1914 and is still practicing there. In 1916 he married Cora M. Giere, an R.N., and has two sons who are physicians, Dr. R. O. Bergan who practices pediatrics in the Duluth Clinic, and Dr. D. E. Bergan, an internist at Fargo Veterans Hospital. Dr. Bergan is a life member of Minnesota Medical Association, West Central Minnesota Medical Society, and is a member of the American Medical Association.



W. D. Brodie, M.D.

Dr. Walter D. Brodie was born and raised in St. Paul. Graduated from the University of Minnesota in 1913, B.S. and M.D. Interned at City and County Hospital in St. Paul in 1913-14 and practiced at Wilmar and County Hospital in St. Paul in 1913-14 and practiced at Wilmar, Minnesota, with Dr. B. J. Branton, 1914-15. From 1915 to 1917 he practiced in St. Paul. Military service began in June, 1917, when he entered the Army, serving on two different fronts. Returned in 1919 to practice in St. Paul. During World War II he served a short hitch in the Navy in 1945. Member of the American College o fSurgeons. Married in 1918 and has two children — on son, W. Douglas Brodie, M.D., of Tahoe City, California, and one daughter, Mrs. Bryce Whitmore (Mary Ellen) of El Sobrante, California.



A. D. Corniea, M.D.

Dr. Albert D. Corniea of Minneapolis was born in Glencoe, Minnesota on October 23, 1888. He received his degree in medicine from the University of Minnesota Medical School and practiced during these past years in both St. Paul and Minneapolis.

Dr. Edward J. Engberg was born in Minneapolis on September 29, 1887. After attending high school in Cambridge, Isanti County, he attended University of Minnesota Medical School, graduating in 1913. He interned at Mounds Park Sanatorium in St. Paul and specialized in neuropsychiatry. He commenced practice in St. Paul in 1914 in partnership with Dr. Charles Ball and Dr. Joel C. Hultkrans. From December 1917 to May 1919 he served with the U. S. Army Medical Corps, reaching the rank of captain before his discharge. He served as a teaching assistant in neurology at the University of Minnesota and later was secretary of the Minnesota Board of Medical Examiners from 1930 to 1935, and was a member of the State Board of Health and Vital Statistics from 1935 to 1937.

On July 1, 1937 Dr. Engberg was appointed medical superintendent of the Faribault State School and Hospital, a position he still holds. He is a member of Phi Rho Sigma medical fraternity, and Alpha Omega Alpha, as well as many neurologic and psychiatric societies, a life member of American Psychiatric Society, a member of Minnesota Psychiatric Society, member and past president of the American Association on Mental Deficiency, a member of Southern Minnesota Medical Society, diplomate of the Board of Psychiatry and Neurology, and is the author of many articles in professional journals in the field of neurology and psychiatry.



E. J. Engeberg, M.D.

Dr. Henry Virgil Hanson was born in Hutchinson, McLeod County, on January 21, 1889. After attending Hutchinson High School he studied medicine at the University of Illinois, graduating in 1912. He interned at Minneapolis General Hospital and began general practice at New London, in Kandiyohi County. From 1917 he served with the British in France as battalion medical officer. He was discharged in 1919 and after a year of convalescence he specialized in eye, ear, nose, and throat diseases. He continued his practice as a specialist in Willmar, Kandiyohi County. In 1923 he joined the staff of the Veterans' Bureau. In 1946 he became a diplomate of the American Academy of Ophthalmology and Otolaryngology. He was appointed Assistant Clinical Professor of Otolaryngology at the University of Minnesota, from which position he retired in 1957 at the age of 68. In the same year he retired from his full time position with the Veterans' Bureau. Dr. Hanson has been inactive since a heart attack a year ago.



H. V. Hanson, M.D.

Dr. Stuart William Harrington was born in Blossburg, Pennsylvania on April 20, 1889. After attending Pennsylvania State College he studied medicine at the University of Pennsylvania, graduating in 1913. His internship was spent at Howard Hospital, Philadelphia, St. Mary's Hospital in Rochester, and the Mayo Clinic. In 1920 he received his M.S. degree in surgery.

Dr. Harrington was on the surgical staff of the Mayo Clinic since 1919. He was head of the section of general and thoracic surgery until his retirement in 1954. From 1936 he was Professor of Surgery of the Mayo Foundation Graduate School, University of Minnesota, and became emeritus professor in 1954.

During World War I he was a lieutenant in the medical corps of the U. S. Army.

Dr. Harrington was a charter member of the American Board of Surgery and a founder of the American Board of Thoracic Surgery. He was vice president of the American Surgical Association and president of the Association for Thoracic Surgery. He is a member of many important surgical and medical societies and also a member of the Advisory Editorial Board of the Journal of Thoracic and Cardiovascular Surgery.



S. W. Harrington, M.D.

Dr. Norton T. Johnson of the Bloomington Clinic in Minneapolis was born on May 31, 1889 at Winthrop, Minnesota. He graduated from Northwestern University Medical School in Chicago in 1911, and spent his internship at various hospitals. He practiced general medicine for a time but for the past 40 years has devoted his practice to eye, ear, nose, and throat diseases. During World World I he served for two years as captain in the medical corps. He served as chief of staff at Deaconess Hospital and is presently still active on the staff.



N. T. Johnson, M.D.

Continued



W. J. Kucera, M.D.

Dr. William J. Kucera was born in Hutchinson, McLeod County, Minnesota on April 16, 1889. He studied medicine at the University of Minnesota from 1907 to 1913, earning his B.S. and M.D. degrees. He is a member of Alpha Kappa Kappa and Alpha Omega Alpha medical fraternities. He spent his internship at Minneapolis General Hospital. He first practiced general medicine in New Prague, Scott County, until 1917. During World War I he was a reserve officer in the medical corps and was assigned to a medical unit with the American Red Cross Commission at Roman, Roumania. He was later stationed at Fort Sam Houston in Texas.

After marrying in San Antonio, Texas he came to Minnesota and settled in Hopkins. He later specialized in the field of eye, ear, nose, and throat diseases and practiced in this field in Minneapolis until he retired in 1957.

Besides belonging to the state and county medical societies and the American Medical Association, he was a member of the Minnesota Academy of Ophthalmology and a Fellow of the American Otolaryngological Society and the American College of Surgeons.



F. A. Love, M.D.

Dr. Frederick A. Love was born in Preston, Fillmore County, Minnesota on July 27, 1877. After attending grade and high school at Preston he studied for two years at Hamline University and then attended University of Minnesota Medical School, graduating in 1913. His year of internship was spent at Asbury Hospital in Minneapolis. He was married in Minneapolis in October 1914. Dr. Love has been practicing as a general practitioner at Carlos in Douglas County.



J. L. Martineau, M.D.

Dr. J. L. Martineau of St. Paul was born on December 20, 1887 at St. John, North Dakota. He received his B.S. degree from the University of North Dakota and then studied medicine at Rush Medical College, Chicago, graduating in 1913. His internship of almost 20 months he spent at St. Anthony's Hospital in Chicago.

In 1915 he began his practice in St. Paul. From 1917 to 1918 he served as a captain in World War I and then returned to his practice in St. Paul. Very recently he discontinued private practice but is still active in industrial medicine and surgery.

He is a member of Alpha Kappa Kappa medical fraternity, the American Medical Association, and the state and county medical societies.



J. C. Michael, M.D.

Dr. Joseph Clement Michael of Minneapolis was born on December 23, 1888 at Jordan, Minnesota. After attending Jordan High School he entered the University of Minnesota, receiving his B.S. in 1912 and his M.D. in 1913. He served his internship in the city and county hospital in St. Paul, and his residency from 1915 to 1918 at Mounds Park Hospital in St. Paul. He had postgraduate training in various specialized phases of neurology and psychiatry. Since 1920 he practiced neurology and psychiatry in Minneapolis and has been medical director of Valley View Hospital and Sanatorium since 1950.

He taught his specialty as clinical professor at the University of Minnesota, becoming emeritus in 1955.

In World War I he served as neurologist from 1918 to 1919. Among society memberships he was a charter member of the Central Neuropsychiatric Association.

All of his publications were in the field of his specialty.

Dr. Frederick P. Moersch was born in St. Paul on March 28, 1889. He earned his B.S. degree in 1911 and graduated from the University of Minnesota Medical School in 1913. He interned at the University Hospital from 1913 to 1914. From 1914 to 1917 he was clinical assistant in neurology and psychiatry. He served in the U. S. Army Medical Corps as captain from 1917 to 1919. After a year as assistant at the Psychopathic Hospital at Ann Arbor, Michigan he joined the Mayo Clinic in July 1921 in the department of neurology.

Dr. Moersch was a member of the American Medical Association, the American Neurological Association, the Academy of Neurology, the American Psychiatric Association, the Central Neuropsychiatric Association, the Minnesota Society of Neurology, the Southern Minnesota Medical Association, and the Minnesota State Medical Association. He is a member of Alpha Kappa Kappa medical fraternity and of Sigma XI.

He retired from the Mayo Clinic on April 1, 1956 and now lives in Fort Lauderdale, Florida, where he is President of the Association of Retired Doctors of Medicine of Broward County.



F. P. Moersch, M.D.

Dr. Martin Nordland was born in Austin, Minnesota on March 9, 1889.

He studied at the University of Minnesota receiving his B.S. degree in 1911 and his M.D. degree in 1913. After postgraduate study in Switzerland he was surgical intern at Minneapolis General Hospital and then associate surgeon with Dr. Gustav Schwyzer. He has continued to practice surgery in Minneapolis. From 1931 to 1934 he was president of the staff of Northwestern Hospital. At the University of Minnesota he held the position of assistant clinical professor of surgery. He is a Fellow of the American College of Surgeons, a member of the state and county medical societies, the Minnesota Academy of Medicine, the Western Surgical Society, and many other important societies, including the American Editors and Authors Association.

Dr. Nordland was one of the founders of the American Board of Surgery. He continues to practice in Minneapolis in association with his son, Dr. Martin A. Nordland.



M. Nordland, M.D.

Dr. W. G. Nuessle was born in Springfield, Minnesota on May 20, 1889. After graduating from Springfield High School he attended Pillsbury Academy at Owatonna and then studied medicine at University of Minnesota, receiving his B.S. degree in 1911 and his M.D. degree in 1913.

After internship and a few years of practice, he located in his home town in 1918, 45 years ago. One of his sons is a physician, Dr. William Nuessle, who practices in Minneapolis.

Dr. Nuessle has been very active in civic affairs, especially on the city council and school board, and still practices his profession.



W. G. Nuessle, M.D.

Dr. Kenneth A. Phelps was born in Fargo, North Dakota on November 11, 1888. He received his preliminary education at Fargo and then attended Dartmouth College at Hanover, New Hampshire. He received his medical education at the University of Minnesota, graduating in 1913. He spent his year of internship at the City and County Hospital (later Ancker Hospital) in St. Paul.

Dr. Phelps specialized in eye, ear, nose, and throat diseases and endoscopy. He became assistant professor in the eye, ear, nose, and throat section at University of Minnesota and was a pioneer in bronchoscopy. In 1936 he was elected vice president of the staff of Abbott Hospital. He practiced in this specialty in Minneapolis for 43 years, retiring in 1956, and then moved to Palo Alto, California.

Continued



K. A. Phelps, M.D.



W. A. Piper, M.D.

Dr. William A. Piper of Mountain Lake, Minnesota was born in Bonfield, Illinois on March 19, 1882. He was one of 10 children and lived on a farm until early adulthood. At 23 he went to the North Central Academy of Naperville, Illinois. He received his medical training at Northwestern University, Chicago, which he entered in 1909 and from which he graduated in 1913. He worked his way through school without any outside help.

He served his internship at Milwaukee County Hospital and started to practice general medicine in Mountain Lake in the summer of 1914. He retired in the summer of 1961 after practicing for 47 years.

During World War I he served a short period as a first lieutenant in the Medical Corps. He has been an active member and president of his county medical society, secretary-treasurer of Southwestern Minnesota Medical Society, and was a councilor for one year and then vice president of the Minnesota State Medical Association.

In his large general practice he delivered more than 3,000 babies. In surgery he worked with the late Dr. L. Sogge of Windom, Minnesota. He was a generous worker and contributor for the local hospital and lived by his creed "Faith in God and hard work."



R. M. Rosenwald, M.D.

Dr. Reuben M. Rosenwald was born in McLeod County, Minnesota on November 1, 1888. He graduated from Glencoe High School in 1907 and began his study of medicine at the University of Minnesota, graduating in 1913. He is a member of Phi Rho Sigma medical fraternity and the Grey Friars honorary society. During his student days he made quite a name for himself as captain of the champion basketball and football teams. He spent his internship at Minneapolis General Hospital. He began his medical practice in Veblen, South Dakota, then practiced in Frazee, and later moved to Robbinsdale where he worked as assistant to Dr. Gustav Schwyzer. He then located in Minneapolis where he was first associated with Dr. Martin Nordland and later with Dr. Albert Corniea until 1953 when he retired after 40 years of medical practice. In 1942 he was chief of staff at St. Barnabas Hospital. He is a member of the state and county medical societies and the American Medical Association. Dr. Rosenwald is married and lives in Anoka, enjoying his retirement.



J. J. Ryan, M.D.

Dr. John J. Ryan was born in Delafield, Wisconsin on February 5, 1887. He graduated from Oconomowoc High School and Sacred Heart College, Watertown, Wisconsin. He received his medical training at the University of Minnesota, graduating in 1913. He spent his internship at St. Joseph's Hospital in St. Paul and began the practice of general medicine in St. Paul in 1916. He is still active in his profession.

Dr. Ryan is a member of the Ramsey County Medical Society, American Medical Association, American College of Surgeons, and the St. Paul Surgical Society. He is a member of A.K.K.

He married Edwina Hushbut in Oconomowoc, Wisconsin in 1915 and has seven children.



A. J. Wentworth, M.D.

Dr. Albert J. Wentworth was born in Clarkfield, Yellow Medicine County, Minnesota on April 4, 1891. He received his B.A. degree at Gustavus Adolphus College, St. Peter, Minnesota. He received his medical education at Gustavus Adolphus, graduating in 1913. His internship was spent at Bethesda Hospital in St. Paul. In 1914 he commenced his practice in Mankato, Blue Earth County, Minnesota and was one of the original members of the Mankato Clinic. He is a diplomate of the American Board of Radiology. During World War I he served as a captain in the Medical Corps and was retired for health reasons.

Dr. Frederick Wittich of Minneapolis was born in Pennsylvania on February 3, 1885. He graduated from Johns Hopkins Medical School in 1913. For many years he served at the medical school of the University of Minnesota as assistant chief of the medical clinic, physician in charge of the chest clinic. He was an assistant professor and faculty member of the extension course staff. He was a member of the outpatient staff of Glen Lake Sanatorium for Tuberculosis and at Minneapolis General Hospital.

Dr. Wittich was a founder and first president of the International Association of Allergology, and from 1942 to 1955 was secretary-treasurer of the American College of Allergists. He was a member of the Committee of Honor at the 50th anniversary of the Discovery of Anaphylaxis in 1950. He was the first to demonstrate spontaneous allergy in the lower animal and the first to demonstrate in vitro the liberation of histamine from human blood. He is an honorary member of the Otolaryngology Allergy Society. He is president emeritus of the American College of Allergists.

His most important scientific discoveries lie in the field of allergy and he was editor of the Review of Allergy and Applied Immunology and associated with other important periodicals on allergy.



F. Wittich, M.D.

Dr. Arthur Albert Wohlrabe of Minneapolis was born in the Village of Nicollet, Nicollet County, on July 10, 1888 and was raised on a farm. He attended Mankato High School and then the University of Minnesota Medical School in 1907, graduating in 1913. After an internship of one year at Minneapolis City Hospital he commenced his practice in Mankato and became one of the organizers of the Mankato Clinic.

During World War I he served one year in the medical corps.

In 1920 he took postgraduate work at Harvard and moved to Minneapolis to become a member of the firm of Willson, Cabot and Wohlrabe and restricted his practice to internal medicine. After losing his partners through death he practiced alone, but in 1950 his son, Dr. A. Cabot Wohlrabe, became his partner and in 1955 Dr. Willis M. Duryea, Jr. joined the firm.

Dr. Wohlrabe retired in 1960 as a member of the firm but is still active.

Besides local medical societies, he is a Fellow of the American College of Physicians, and a member of the Minnesota Internist Association and the International Society of Internal Medicine. He is a diplomate of the American Board of Internal Medicine.



A. A. Wohlrabe, M.D.

Dr. Henry W. Woltman was born in Westfield, Wisconsin on June 16, 1889. He received the degrees of B.S. and M.D. from the University of Minnesota, the latter in 1913. His internship of 17 months was spent at the University Hospital. For three years, 1914 to 1917, he was a teaching Fellow in neurology and psychiatry at the University Medical School. From 1917 to 1919 he served as a first lieutenant in the medical corps.

He joined the Mayo Clinic as first assistant in neurology on July 1, 1917, and became instructor in neurology in the Mayo Foundation School of the University of Minnesota in 1918.

Dr. Waltman continued as consultant in neurology at the Mayo Clinic until 1956 when he retired from active practice. After only a few months of retirement he became neurologic consultant of Rochester State Hospital, serving in this capacity until 1959.



H. W. Woltman, M.D.

Dr. Richard I. Dorge of Minneapolis was born in 1887. He was graduated in medicine from the University of Minnesota and licensed to practice medicine in Minnesota, both, in the year 1913. He established himself in Eye, Ear, Nose and Throat practice in Minneapolis shortly thereafter and has remained in the active practice of his specialty ever since. He is still an active member of the Hennepin County Medical Society and the Minnesota State Medical Association, and has been so without interruption since 1921 when consistent records were first established in Association files.

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Curbstone Consultation

Hypoglycemia

QUESTION: I have recently read of a hypoglycemic state producing symptoms similar to alcohol intoxication with dizziness, staggering, unsteady gait, etc. Is this a common occurrence? Does it represent a disease entity? *M.D., Rochester*

ANSWER: Hypoglycemia of any cause can produce a wide variety of neurological symptoms including those described. There are many causes of spontaneous hypoglycemia. One of the most common is "Functional hyperinsulinism", apparently due to the inappropriate release of insulin by the pancreas following a meal. This condition can be diagnosed fairly readily by the typical sequence of symptoms and the results of a five-hour glucose tolerance test. Some of the other common causes of spontaneous hypoglycemia include pancreatic adenoma, liver disease, and the administration of insulin or sulfonylurea drugs. (Orinase, etc.)

Subareolar Buttonlike Mass

QUESTION: Should the subareolar buttonlike mass found in the prepubital boy or girl be removed? Should these be treated with hormones? *M.D., St. Paul*

ANSWER: The condition described is entirely benign and there is no indication for surgical or medical treatment.

Gynecomastia

QUESTION: I have a patient who drinks a great deal, his breasts have been attaining female characteristics. Is this related to his excessive drinking?

M.D., New Ulm

ANSWER: Gynecomastia is seen commonly in states of malnutrition, including alcholism and cirrhosis. This is believed due to altered estrogen metabolism, such as impaired hepatic conjugation of estrogens.



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NTz Nasal Spray also provides decongestive relief for head colds, perennial rhinitis and sinusitis. Supplied in leakproof, pocket-size, squeeze bottles of 20 ml. and in bottles of 30 ml. with dropper.

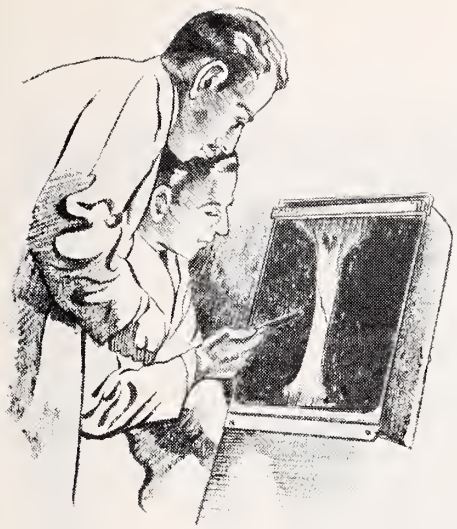
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Indications for Surgical Intervention

Two reasons for surgical intervention in the treatment of a closed supracondylar fracture of the humerus are: (1) the presence of pain, pallor, paralysis, and pulselessness as described by Griffith,[1] which herald an impending neurovascular catastrophe; (2) The failure to secure a satisfactory reduction of the fracture fragments by manipulation and casting, or by traction. The following case report illustrates some of the difficulties in the management of this type of fracture.

L. B., a 34-year-old Indian female fell, on February 17, 1963, striking her left elbow. X-rays taken at the Minneapolis General Hospital revealed a supracondylar fracture of the humerus. There was no evidence on admission of neurovascular impairment. Under general anesthesia the elbow was manipulated and the fracture reduced. Good alignment was obtained with the elbow in full flexion, but in this position the radial pulse disappeared. Less acute flexion was then used to hold the fragments and a posterior splint was applied.

On February 18, 1963 her case was presented to the *Fracture Conference*. It was pointed out that this was really a transcondylar fracture, and that these are notoriously unstable. Frequent follow-up X-rays were therefore recommended. In further discussion concerning the prevention of neurovascular complications it was emphasized that often the presence or absence of the capillary pulse in the fingertips is a better indicator of the circulatory status than is the radial pulse.

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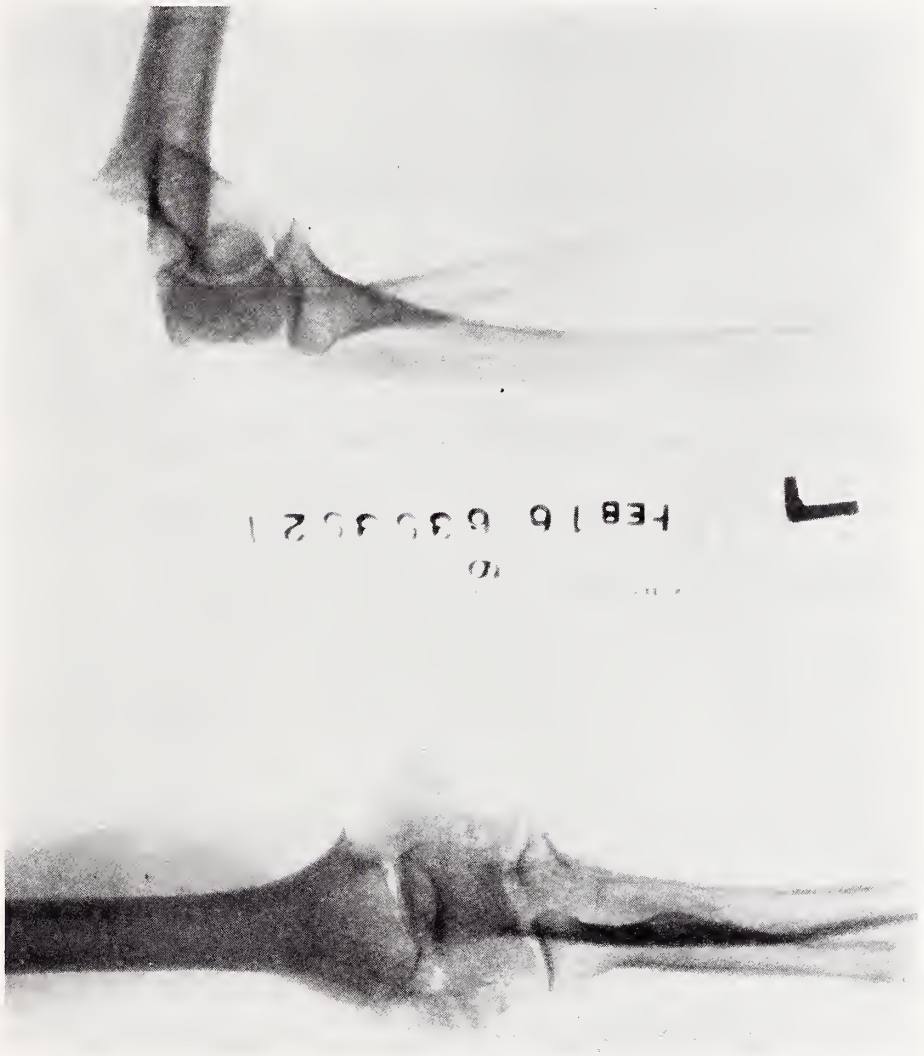
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On February 20, 1963 X-rays revealed that the distal condylar fragment had slipped to an unsatisfactory position. Remanipulation under general anethesia was performed and only in full flexion where the circulation was embarrassed could the fragments be held satisfactorily. Therefore, the elbow was properly prepared and open reduction and fixation was accomplished utilizing two threaded Kirschner wires. A posterior splint was applied with the elbow in 90° flexion. It was planned to begin active motion in three to four weeks.



Proper treatment of supracondylar fractures of the elbow requires diligence of the operator in obtaining, and then maintaining alignment of the fracture fragments. However, the circulatory status of the hand and forearm is of prime importance. A belief held long ago that the paralysis and contractures occur as a result of prolonged deprivation of arterial blood[2] is today believed to be axiomatic. Lipscomb stated, after reviewing the supracondylar fractures of the humerus treated at the Mayo Clinic that, if the four P's of Griffith are present, immediate exploration of the antecubital fossa is indicated.[3] A great responsibility lies, therefore, with the physician who sees the patient early following his injury, for delay in the relief of the distal ischemia may well change a remedial condition into one of remorse.

Harrison H. Farley M.D.
Minneapolis General Hospital

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3. Lipscomb, Paul R., Burleson, R. Joe, Vascular and Neural Complications in Supracondylar Fractures of the Humerus in Children. J Bone Joint Surg; 37-A: 487, 1955.

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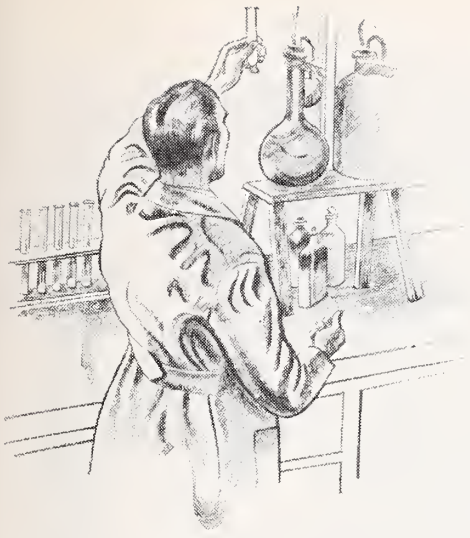
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Clinical Path Conference

Alcoholism, Jaundice and a Distended Gallbladder

(Editor's Note: In the June issue, it was necessary to divide the Pathology Conference into two parts and run one part at that time. The article in June ended with the beginning of Dr. F. W. Hoffbauer's diagnosis, and the following is a continuation of his diagnosis plus a discussion of Courvoisier's Law.)

Dr. F. W. Hoffbauer: *

It might be of interest to look at some of the older data upon which Courvoisier's Law was founded. I should like to read briefly an item that is of local interest. In the St. Paul Medical Journal for December 1901 (vol. 3, p. 801) there appears an original article entitled "Courvoisier's Law." This paper was submitted by Dr. Richard C. Cabot, the famous Boston physician, now well remembered for his writings and textbooks on physical diagnosis, and perhaps best remembered for the "Cabot Cases," the Clinical Pathological Conferences held each week at the Massachusetts General Hospital.

Courvoisier, a surgeon in Basle, recorded his observations in 1890 in a monograph published in Leipzig. Courvoisier tabulated a great deal of data concerning disease of the gallbladder and bile passages; in this tabulation he included a study of distention of the gallbladder due to obstruction of the common bile duct. He was able to collect 187 observations relative to this question. In 87 instances where the common bile duct was obstructed by stone, the gallbladder was atrophied in 70 and dilated in 17. Of 100 instances with obstruction due to causes other than stone (presumably cancer) 92 were associated with a dilated gallbladder. Courvoisier analyzed his own cases and found that indeed they corresponded to the above observations. In 1892 Mayo Robson, the English surgeon, independently came to much the same conclusion and stated "jaundice with a distended gallbladder is presumptive evidence in favor of malignant disease; jaundice without a distended gallbladder favors the diagnosis of cholelithiasis." Cabot reviewed the available literature just at the turn of the century and observed that English and continental writers generally subscribed to the Law of Courvoisier; however, most American writers of

*Professor of Medicine, Chief, Internal Medicine Service, Minneapolis General Hospital



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textbooks placed less emphasis on this finding. Therefore Cabot undertook to evaluate the "Law" by analyzing cases from the Massachusetts General Hospital. On the basis of 86 cases (30 autopsies, 56 operations) Cabot concluded: "the results of my study has been to confirm beyond my expectations the truth of Courvoisier's Law." Cabot's concluding sentence in the 1901 article published in the St. Paul Medical Journal was as follows: "The statistics that I have quoted seem to be to warrant the conviction that this rule can be relied upon to an extent rarely possible in a manner so uncertain as physical diagnosis."

In the present case under discussion, I must obviously make a judgement. Inasmuch as I have committed myself to extrahepatic biliary tract obstruction, I must choose between stone and cancer. It is almost traditional at these Minneapolis General Hospital Clinical Path Conferences for Dr. Coe to introduce the unusual or exotic; one never knows exactly how to bet in this game. The pathologist may have a "pat" hand; at any rate he has the "upper" hand. I must of necessity play it safe. The odds favor cancerous obstruction. I shall rely on Courvoisier and Cabot. I just do not think it likely that a gallstone impacted in the distal end of the common duct could lead to such a remarkable tense and distended gallbladder as this patient seemed to have.

Dr. Hoffbauer's Diagnosis: Extrahepatic biliary obstruction due to cancer of ampulla or bile duct.



Fig. 1
The common bile duct has been opened longitudinally to reveal dilatation above the area (arrow) where an impacted stone was presumably lodged.



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Pathological Discussion

Dr. Leonard W. Etchart:*

The patient was taken to the operating room on the 14th hospital day. Exploratory laporotomy was performed under local anesthesia because of the patient's critical condition. The distended gallbladder contained multiple large and small stones. A cholecystojejunostomy was performed and a biopsy of the liver secured. The operative procedure was cut short by the patient's deterioration — he required vasopressor agents to sustain the blood pressure. A complete examination of the abdomen was not possible at this time.

The patient's postoperative course was marked by fever, hypotension and marked respiratory distress. A tracheostomy was performed. Vasopressor agents and antibiotics were continued but were without favorable influence. The patient expired on the 23rd hospital day.

Examination of the surgical biopsy of the liver revealed changes consistent with acute and chronic cholangitis. A marked degree of cholestasis was evident. The autopsy examination in this instance was limited; the abdomen was opened through the surgical incision. The pancreas was found to be normal. The common duct was dilated. There was no tumor or stricture of the common duct. No stones were found within the common duct although the area where a stone had been impacted was recognizable (see arrow, Fig. 1). The cholecystojejunostomy was intact.

*Dr. John I. Coe**:*

Before we comment further on the microscopical changes in the liver, I wonder if Dr. Hoffbauer would care to make any comments. Could you tell us why the patient, despite the construction of a satisfactory cholecystojejunostomy, continued to deteriorate and expire?

Dr. Hoffbauer: The late Hamilton Bailey stated "the abdomen is a temple of surprises; it is by our diagnostic humiliation when the abdomen is opened that we learn." I am continuing to learn. The Law of Courvoisier is not infallible; there are exceptions. The present case is indeed a remarkable example. I did suspect that this 74 year old man might have an underlying quiescent or relatively inactive Laennec's or fatty cirrhosis and that the extrahepatic obstruction would be superimposed upon this. I see now that this was not the case; I should have learned from past experience. I have seen biliary cirrhosis due to common duct stone that did produce ascites in elderly males.

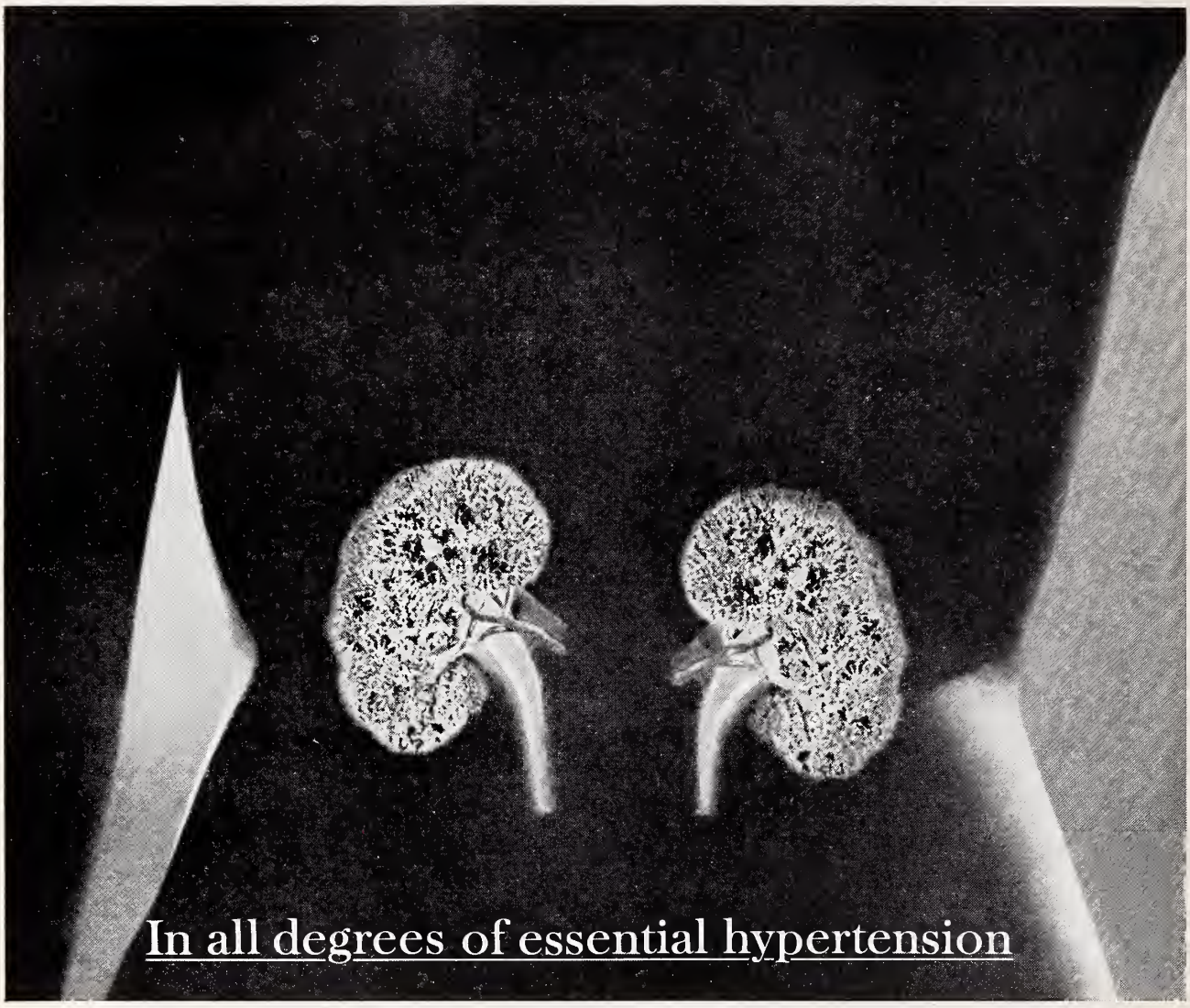
I am sure I do not have the answer as to why this patient failed to respond to drainage of this obstructed biliary duct system. According to the figures Dr. Etchart showed us regarding the postoperative course, the serum bilirubin did decline from the high point of 42 mg./100 ml., but only to 26 mg. This is just about where the patient started when he first came under observation. I noted also that the blood urea nitrogen rose to 88 mg./100 ml. We have then the element of renal failure. I presume we can mention the possibility of the "hepato-renal syndrome." This, however, adds very little to our understanding of the basic problem. I can only presume that the combined effects of severe pulmonary infection, possibly with antibiotic resistant organisms combined with renal failure, led to the fatal outcome.

Dr. Coe: The liver biopsy (Fig. 2a) obtained at operation showed a marked degree of cholestasis. The section from the liver obtained at post mortem (Fig. 2b) revealed very severe and widespread hepatic degeneration. Virtually every liver cell

---

*Minneapolis General Hospital

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References: (1) Moyer, J. H., and Heider, C.: Am. J. Cardiol. *9*:920 (June) 1962. (2) Brest, A. N., and Moyer, J. H.: Pennsylvania M. J. *63*:545 (Apr.) 1960. (3) Berry, R. L., and Bray, H. P.: J. Am. Geriatrics Soc. *10*:516 (June) 1962. (4) Hutchison, J. C.: Current Therap. Res. *4*:610 (Dec.) 1962. (5) Feldman, L. H.: North Carolina M. J.: *23*:248 (June) 1962.

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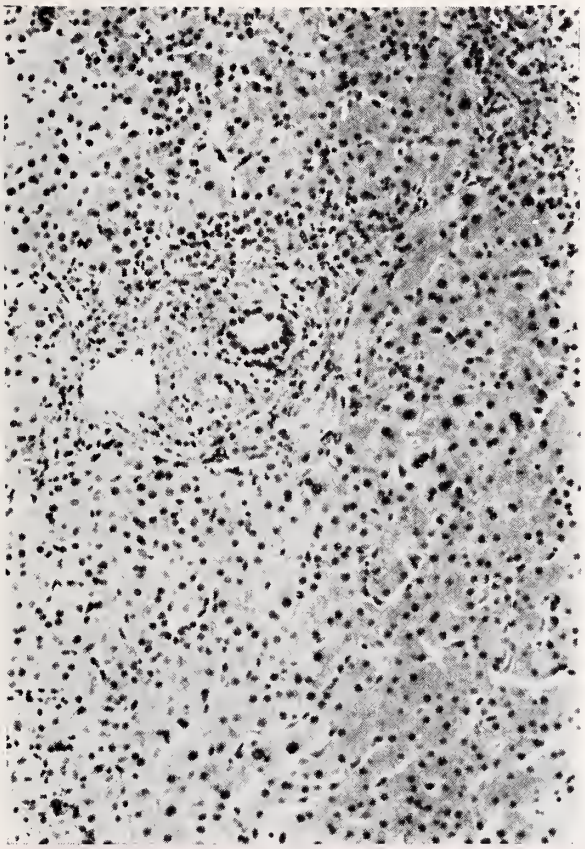


Fig. 2a
Photomicrograph of the liver secured at operation. The outstanding feature was bile stasis.

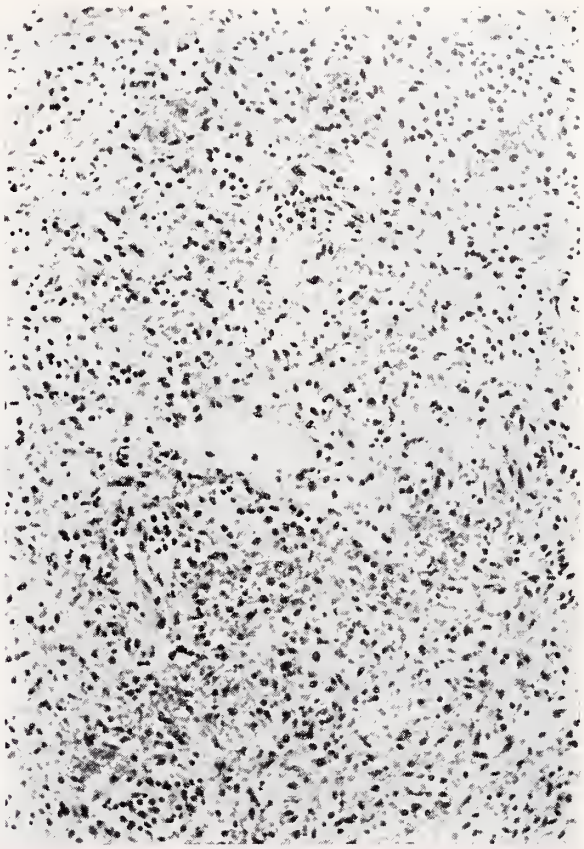


Fig. 2b
Photomicrograph of the liver demonstrating diffuse acute necrosis of the parenchymal cells.

was destroyed. Since the autopsy was very limited, we do not have information on all the tissues; nevertheless, I feel quite certain that this was a major factor in the patient's deterioration. Multiple sections of the common bile duct and the head of the pancreas were cut from microscopical examination. No evidence of tumor obstruction of the common bile duct could be found.

Anatomical Diagnosis.

1. Common bile duct obstruction due to stone.
2. Ascending cholangitis.
3. Cholestasis due to extrahepatic obstruction.
4. Diffuse hepatic cell necrosis.

F. W. HOFFBAUER, M.D.
Minneapolis General Hospital

IT'S THE LAW

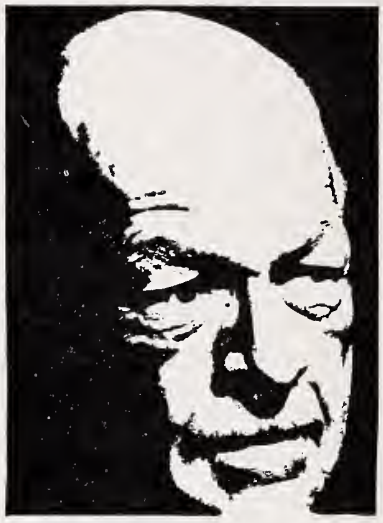
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6/63 63WL36K-12

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Abstracts, Briefs and Commentaries

STEROIDS AND PEMPHIGUS

Of 32 patients with pemphigus vulgaris, treated with corticosteroids and followed for at least 2 years, 21 are living. Five of these are free of lesions without treatment, 5 are free of lesions and receiving maintenance therapy, and 11 have a few lesions and are under treatment. Of 11 patients with pemphigus foliaceus, 6 are living and free of lesions without treatment. One patient with pemphigus vegetans and 2 with pemphigus erythematosus are living and well, without treatment. There was a total of 16 deaths. In 3 cases death was attrabutable to treatment with corticosteroids, and in the other 3 a relationship to treatment was suspected. Side reactions to the corticosteroids were rather common, and in 2 patients posterior subcapsular cataracts developed as a result of high dosage corticosteroid therapy. Concurrent administration of testosterone and estrogens was regarded as an effective prophylaxis against vertebral fractures. The importance of early diagnosis and prompt, vigorous treatment in pemphigus vulgaris is stressed.

Courtesy of References & Reviews
Journal of the American Medical Association

Lever, W., and White, H.
Arch Derm 87:12 Jan 1963

TREATMENT OF IMPETIGO

In a double-blind study, the efficacy of topical antibiotic treatment was compared with that of systemic antibiotic treatment in 78 cases of superficial impetigo. Systemic administration of erythromycin was found to be a significantly more reliable form of therapy than topical administration of a combined bacitracin-neomycin ointment. The initial size of the lesion affected the "cure time" and therefore the length of treatment. No criterion which could have been obtained by a detailed history or physical examination would have permitted the identification of the infecting organisms without culture.

Courtesy of References and Reviews
Journal of the American Medical Association

Burnett, J. W. New Engl J Med 268:72 Jan 10 1963

HEMOCHROMATOSIS

Multiple phlebotomies are basic therapy in hemochromatosis. A review of 58 reported cases and 1 case added by the author indicates that 48 of the 59 (80 per cent) showed significant improvement under this regimen. The diabetic manifestations in hemochromatosis can be controlled by insulin, and the repeated venesections are aimed at avoiding hepatic and cardiac failure. Although therapy did not save the patient in the new case presented (due to development of a hepatoma) the physician can expect, in most uncomplicated cases, improved general well-being and lessening of pigmentation. Better still is the expectation of reducing liver size and improved liver function test results in about 79 per cent. In 61 percent diabetes becomes more readily controlled. Often the severity of congestive heart failure is lessened, and even hypersplenic anemia may improve. Failure of significant response may be expected in 20 to 25 per cent, often seen where there is excessive fibrosis or secondary complications (as hepatoma in the case presented) or tuberculosis or macrocytic anemia.

The 55 men and 4 women ranged in age from twenty-seven to sixty-nine years. Observations ranged up to ten years (in 1 case) but the average was three to five years. The clinical diagnosis was substantiated in all cases by liver or skin biopsy or both.

The amount of blood let in this series ranged from 2.5 to 96.4 liters. Since a pint of blood contains 250 mg. iron, removal of the estimated overload of 25-50 mg. requires long bleeding to produce first a drop in the serum iron and then reduction in hemoglobin to below 10 gm. To prevent reaccumulation of excessive parenchymal iron, 3 to 4 phlebotomies a year will be necessary. Experience has indicated that bleedings from 500 ml. to 2500 ml. a week have no ill effects. If the diet is adequate, plasma reinfusion is not necessary. In the case presented, phlebotomies took an average of 500-600 ml. whole blood per week over a period of almost two years for a total of 50 liters. At first the response was dramatic; the patient's vigor increased and requirements of 30 units of insulin daily ceased.

Continued

With development of a hepatoma the patient's condition deteriorated rapidly and he died within a few months. It appears that the greatest benefit may be derived from judicious bleeding of the preclinical case before early liver changes occur.

Courtesy of Medical Abstract Service
Berwyn, Illinois

Kimbrell, O. C. N. Carolina Med J 23:280-283 July 1962

PLASTIC PATCHES FOR ARTERIES

Since middle cerebral aneurysms can rarely be satisfactorily treated by trapping or direct clipping, 13 consecutive cases have been treated by reinforcement with adherent plastics. The first coat consists of polyvinyl-polyvinylidene chloride copolymer, sprayed through an artists' airbrush. This produces a thin, dry coat, so adherent that it cannot be removed without stripping adventitia. The second layer is an epoxy-polyamide resin, which provides a resilient, strong reinforcement, intimately adherent to the first coat. Excellent results were obtained in 9 cases, good results in 3, and a poor result in one. There were no deaths.

Selverstone, B.
J Neurosurg 19:884 Oct. 1962

Limitations of the suture method of repair of intracranial arteries is discussed. A nonsuture method of patching arteriotomies in dogs in vessels from 1.5 to 4 mm. in external diameter, using a plastic adhesive, is described, with 100% patency rate in 390 arteriotomies; some of the dogs have been followed for 2 years. A case is reported of an intracranial internal carotid aneurysm in man, in which the silver clip sloughed through the neck of the aneurysm. The vessel was temporarily clamped and the hole patched with dura and Eastman 910 Adhesive (Monomer). Follow-up angiography 2 months later revealed a patent carotid artery, with some further narrowing. This method requires further clinical experience and evaluation. It is felt that it will ultimately allow reparative techniques to be used in human intracranial vascular surgery, where none is truly available at the present time.

Courtesy of References and Reviews
Journal of the American Medical Association

Carton, C. A., Heifetz, M. D., and Kessler, L. A.
J Neurosurg 19:887 Oct. 1962

DERMABRASION

A follow-up study of 15 men who had dermabrasion for post-acne scarring included psychiatric examination and some psychological tests, to evaluate their emotional status and to elicit any postoperative changes. The patient's evaluation of the actual change of the skin was compared to an evaluation by the dermatology service. The group was found to have great deficiencies in their emotional life, mainly in the area of interpersonal relationships. These personality patterns were evident prior to adolescence and were fixed by the subsequent acne. In spite of these longstanding problems, the patients showed some improvement in their psychological status postoperatively and they evaluated the facial change realistically. There were no adverse psychological effects. Dermabrasion can be recommended without fear of increasing psychological difficulties.

Courtesy of References & Reviews
Journal of the American Medical Association

Markel, D.
Arch Derm 87:128 Jan 1963

ACUTE CHOLECYSTITIS

The author describes observations on 400 consecutive patients with cholelithiasis or cholecystitis, or both, all of when were operated on by himself. In general, surgery was carried out as soon as the treatment to restore fluid and electrolyte balance had been completed, but in some patients an expectant treatment had been followed either at home or in the hospital department of internal medicine. Ideal cholecystectomy was aimed at; this involves subserous removal of the gallbladder and closure of the wound without drainage; dissection is begun at the fundus. The 400 patients were divided into 3 main groups. Group 1 numbered 112 who had stones in the gallbladder but no signs of inflammation. Group 2 included 152 patients with acute inflammation of the walls of the gallbladder, and all except 11 also had stones. Group 3 numbered 136 (28 without stones) in whom the cholecystitis was regarded as chronic. With regard to mortality, incidence of postoperative complications, postoperative elevation of body temperature, and duration of postoperative hospitalization, there were no statistically significant differences between the different groups. Operation during the acute stage was as effective as at the other stages. Comparison of this series with patients treated expectantly or by elective operation corroborated the author's view that operation should be performed as early as possible, provided the patient has been adequately prepared, and there are no definite contraindications to the operation.

Courtesy of References & Reviews
Journal of the American Medical Association

Vuori E. E.
Ann Chir Gynec Fenn 51:331 no 3 1962

SQUATTING AND CIRCULATION

The authors investigated the effects of squatting in an attempt to explain how squatting increases arterial oxygen saturation in some patients and thus provides symptomatic relief. Their studies were made on 14 patients with Fallot's tetralogy, who were cyanotic either at rest or after exercise, and on 14 acyanotic subjects (11 normal subjects and 3 with atrial septal defect). The subjects squatted from either the standing or the lying position (squat-lying) at rest or after exercise, and 5 of the normal subjects squatted in a swimming pool. Squatting from the standing position increased arterial blood pressure, cardiac output, and "central blood volume" in normal subjects. Squatting in the lying position or in water had no effect. Squatting exerts its action on the circulation, not by kinking arteries and veins to the legs, but by bringing the heart closer to the level of the feet. Patients with Fallot's tetralogy have an increase in arterial oxygen saturation when they squat, whether at rest or after exercise. The rise in saturation is associated with a reduction in the right-to-left shunt. The authors suggested that the reason for the increase in saturation in patients with Fallot's tetralogy is anatomical and related to a shunt from the right ventricle to the aorta.

Courtesy of References and Reviews
Journal of the American Medical Association

O'Donnell, T. V., and McIlroy, M. B.
Amer Heart J 64:347 Sept. 1962

GALLSTONES IN CIRRHOSIS

Necropsy protocols of 362 patients with cirrhosis of the liver were reviewed. The incidence of gallstones in all cases of cirrhosis was 22.6% as compared with 14.2% in the general necropsy population. The incidence of gallstones in the alcoholic cirrhotic was almost twice that in the nonalcoholic cirrhotic. Several factors may explain the increased incidence of gallstones in the alcoholic cirrhotic. These include stasis of bile as a result of edema and spasm of the sphincter of Oddi, failure to evacuate the gallbladder at the usual postprandial intervals, and hemolysis of red cells.

Courtesy of References and Reviews
Journal of the American Medical Association

Davidson, J. F. Amer J Med Sci 244:703 Dec 1962

MANNITOL AND INTRAOCULAR PRESSURE

An intravenous solution of 500 cc. of 20% mannitol was used to reduce intraocular pressure. In 8 nonglaucomatous eyes the average reduction was 48.3%, with a duration of 2.5 to 4.5 hours. In 9 glaucomatous eyes the average reduction was 52.8%, with a duration of 2.5 to 4 hours. Blood osmolarity rises coincided with the fall in intraocular pressure. Side effects included thirst, diuresis, mild headaches. Angina occurred in one patient. It was concluded that mannitol is a safe and effective drug.

Courtesy of References and Reviews
Journal of the American Medical Association

Smith, W. W., and Drance, S. M. Arch Ophthal 68:734 Dec 1962

GYNECOMASTIA

The authors list the many possible causes of gynecomastia, including the gynecomastia of puberty, also that associated with cirrhosis of the liver, hypogonadism, and and physiologic reasons for elevation of or failure of elimination of estrogen.

Most of the gynecomastia in puberty and adolescence regress spontaneously but when these or other types become sufficiently enlarged and persistent to become a cosmetic problem, the authors have offered a description of rather simple means of excision by a semicircular infraareolar incision with preservation of the nipple and excision of the mammary tissue.

Gynecomastia is a very common occurrence at adolescent age and usually should be treated only by reassurance of the patient and family. In the adult, patients with cirrhosis of the liver, and patients with carcinoma of the prostate under estrogen therapy will develop breast enlargement. Frequently this may be unilateral and a source of considerable concern as to possible presence of carcinoma. The physical appearance and characteristics on palpation should settle the concern in this matter.

The pre-puberty girl may on occasion develop a unilateral breast. In this circumstance unwarranted concern may lead to serious adult disfigurement if the anlage of the breast is removed.

J. H. Strickler, M.D.
Minneapolis, Minnesota

Von Kessel, Fred; Pickerell, Kenneth L.; Huger, William E.; and Matton, Guido. "Surgical Treatment of Gynecomastia" Ann Surg, 157:142, 1963.

HODGKIN'S DISEASE

Of 118 histologically confirmed cases of Hodgkin's disease treated over a period of fifteen years, 87 fell into the first ten-year period and could be evaluated for five year survival. The over-all five year survival rate (with all forms of therapy) was 31.0 per cent. In these 87 patients, survival according to stage of disease (Peters' criteria) was as follows: Stage I, 56.6 per cent; Stage II, 36.4 per cent; Stage III, 13.0 per cent. Under each stage, the authors also tabulate survival rates according to therapy. For the entire group, the shortest survival was one month, the longest thirteen years from onset of treatment.

Of the 118 patients 90 were male and 28 female, the ratio somewhat exaggerated because of the military population, although the incidence is usually higher among men, about 2 to 1. Ages ranged six to sixty-nine years, average, thirty. Six patients were under sixteen. Four females were pregnant at the time of diagnosis. Histologic types included granuloma, paragranuloma, sarcoma, and mixed forms. By stage of disease the 118 patients were distributed as follows: Stage I, 37 (31 per cent); Stage II, 16 (14 per cent); and Stage III, 65 (55 per cent). In Stage I the cervical area was the most frequent site. Surgery, radiation, and chemotherapy, given alone or in various combinations, were the therapeutic modalities. For localized disease X-ray therapy is the treatment of choice, but in accessible local lesions surgery followed by radiation may be most effective. For palliative treatment in widespread disease, chemotherapy alone or combined with radiation may prove most effective. Patients in Stage I treated with X-ray only were given tumor doses of 2-3000 r over a three to four week period with a conventional deep X-ray therapy unit. When combined with chemotherapy, they were given nitrogen mustard or cyclophosphamide (Cytoxan) either before or after a course of X-ray therapy, in doses consistent with body weight, with the radiation dose from 1000 to 2000 r. Lymphadenectomy alone was used in one case. The other 5 patients treated surgically (all 6 were in Stage I) were followed with X-ray doses of 2-3000 r to the tissues over the operative sites. For Stage II, for X-ray treatment alone, tumor doses ranged from 2-3000 r. For combined therapy in Stage II therapeutic doses were used as in Stage I. For Stage III when treated by radiation alone, patients were given palliative doses between 1-2000 r, depending on response. When given in combination with chemotherapy the chemical dose was guided by body weight. Patients treated only by chemotherapy the chemical dose was guided by body weight. Patients treated only by chemotherapy got nitrogen mustard or Cytoxan to tissue response or to tolerance.

All the patients in Stage I treated by surgery or surgery and X-ray survived 5 years or more. Of the 11 in this stage treated by X-ray alone only 4 survived five years, for a rate of 36.4 per cent. None of those in Stages II and III were treated surgically. In Stage II, the survival rates were: X-ray alone, 50 per cent; X-ray and chemotherapy, 28.5 per cent. For Stage III, the five-year survival rates were: X-ray per cent; X-ray and chemotherapy, 28.5 per cent. X-ray and chemotherapy, 4.1 per cent.

Courtesy of Medical Abstract Service
Berwyn, Illinois

Zanca, P. Brasco, D. J., Fagan, C. J.
Amer Practit 13:399-402 June 1962

Continued

FAMILIAL HYPOGLYCEMIA

This is a report of a family of 7 with idiopathic hypoglycemia in most of whom a moderate reduction of the serum blood sugar occurred with the ingestion of L-leucine and DL-alanine, and in one with galactose.

The authors review the symptoms of 16 infants with this disorder reported in the literature and note a history of epileptic attacks in 12 and episodes of drowsiness, perspiration and limpness in 4. Nine of these infants had normal mental development and no neurological deficit. The other 7 were mentally retarded and one of these had cerebral diplegia and cortical blindness.

Treatment consists of frequent carbohydrate feedings and in more severe cases, the administration of gluco-cortico-steroids or cortico-tropin. However, this latter treatment should be avoided if possible because of adverse side effects among which the most important is retardation of growth.

Peter J. Dyck, M.D.
Rochester, Minnesota

Dekabon, A.; Field, J. B.; and Stevens, H. "Familial Idiopathic Hypoglycemia" Arch Neurol 7:529, Dec. 62.

TREATMENT OF DIABETES

In view of the newer concept of the progression of diabetes through 4 distinct stages, the goals of management of diabetes mellitus have become as follows: prevention of the progression of prediabetes to chemical diabetes, the reversal of chemical diabetes, the alteration of the course of acute diabetes, and the prevention, postponement, or correction of the characteristics of chronic diabetes. The treatment of each of these 4 stages of diabetes is discussed separately.

Several programs have been designed with the purpose of impeding the progress of prediabetes: (1) substances that protect islet tissue and favor hypertrophy and hyperplasia (for example, sulfonylureas), (2) muscular exercise (it promotes rapid utilization of glucose and is believed to favor the production of an X factor that acts as insulin in promoting the transport of glucose across the cell membrane), and (3) limitation of quantity and concentration of carbohydrate in the diet.

Chemical diabetes is the stage in which the level of the random blood sugar is normal and there are no clinical symptoms, but glucose administration provokes a hyperglycemic response. Conn and Fajans have recommended the use of sulfonylureas, while Hoet and Wilkerson each advised insulin.

The treatment of overt diabetes depends upon whether it is the maturity-or growth-onset form. The sequence in which the various treatments should be tried in maturity-onset diabetes is as follows: diet, oral hypoglycemic agents, and insulin. A patient is a suitable candidate for oral therapy if dietary treatment alone has failed and if a screening test shows that 3 Gm. of tolbutamide (Orinase) produces a 50% fall of blood sugar in 4 hours. The following rules continue to be helpful in identifying suitable patients: age at onset of diabetes of 40 or more years, stocky build, and insulin requirements not exceeding 40 units. Secondary failures, which probably represent the progression of diabetes in its natural course, occur in 10 to 15% of cases. It has been found at the Joslin Clinic that retinopathy, nephropathy, and neuropathy are precipitated after bouts of poor chemical control and that stages of these complications are reversible with the resumption of good chemical control. Growth-onset diabetes should be managed with insulin for the treatment of the diabetes itself and a dietary program to promote normal rates of growth and development.

Therapy of chronic diabetes consists of attempts to reverse or correct the vascular lesions, which are at the following sites: vessels of the foot and leg in the aged, the coronary vessels in those who develop diabetes in middle life, and the glomerulus and the retina in those who develop diabetes in youth.

Courtesy of Farley Manning Associates
New York, New York

White, Priscilla
Med Clin N Amer 46:1177-1189 September 1962

INSULIN RESISTANCE

Occasionally diabetics show a sudden marked deterioration that requires large increases in insulin dosage. The term insulin resistance has been applied to this condition, which may be associated with the presence of insulin-neutralizing or insulin-binding antibodies.

Juvenile diabetics are notoriously unstable, with a marked tendency to ketosis in the presence of acute infection. In 20 cases of juvenile diabetes tests for insulin antibodies were done.

In 7 cases deterioration was noted, but no instances of true insulin resistance were observed. The tests for insulin antibodies were positive in 5 patients, all of whom showed clinical deterioration at the time. After a temporary increase in the required dosage of insulin, however, all cases were easily controlled, and after a short time the insulin dosage could be reduced.

The study showed that in juvenile diabetes insulin antibodies are uncommon. In some cases the presence of antibodies seems to be the only detectable explanation of a deterioration, but such deteriorations are more likely to be connected with some other type of insulin antagonism.

Courtesy of World Wide Abstracts
Excerpta Medica Foundation

Engleson, Gunnar, and Nilsson, Stig-Bertil. "Antibody Tests Positive in Five Patients in Deterioration but Resistance Was Temporary" Acta Paediat 51/4:433-37

OCCULT MANIFESTATIONS OF CANCER

A summary with classification of the clinical syndromes occasionally associated with, or heralding, cancer has been prepared. Some tumors present with an endocrine or endocrine-like action; included in this group are thymomas, non-beta cell tumors of the pancreas, and carcinoids. Cushing's syndrome, hypoglycemia, hypercalcemia, polycythemia, and gynecomastia have been produced by a wide variety of tumors. Tumor emboli, nonbacterial thromboendocarditis, and thrombophlebitis occur occasionally, but thrombophlebitis is not so frequent as was previously considered. Neurological syndromes are rare and show a great variety of presentations. Other occult manifestations of cancer include hypertrophic pulmonary osteoarthropathy, various skin diseases, obscure pyrexias, and pain in Hodgkin's disease secondary to alcohol consumption.

Courtesy of References and Reviews
Journal of the American Medical Association
Henderson, R.D. Canad Med Assn J 88:31 Jan 5 1963

GYNECOMASTIA

The effect of gynecomastia on personality development was evaluated in 284 boys and men with onset, in 88%, during adolescence. Pubertal breast nodes or pectoral obesity usually created no adverse adaptations. Some adolescents used the physical defect to rationalize underlying psychopathology. When the breasts were pendulous, epitomizing femininity, the body-image was distrubed. The greater the insecurity and concern about sexual adequacy, the more intense were the reactions and compensatory adaptations. Passivity, dependency, and a variety of behavior patterns associated with the feminine role were common manifestations. Some strove to prove their adequacy as males, a few accepted overt homosexuality, while others manifested a variety of defenses and psychosomatic symptoms. Patients with pendulous breasts required both reconstructive surgery and psychotherapy before and after the mastectomy.

Courtesy of References and Reviews
Journal of the American Medical Association

Schonfeld, W. A.

Psychosom Med 24:379 July-Aug. 1962

INTERSCAPULAR TENDERNESS AND ULCER

Seven hundred and sixty-four patients were examined for tenderness over the periosteum of the spinous processes of the first and second thoracic vertebrae. Fifty of 55 patients with radiologically demonstrated duodenal ulcers had interscapular tenderness. The overall diagnostic correspondence between presence or abscence of interscapular pain and the presence or abscence of demonstrated duodenal ulceration in patients of suggestive symptoms or previously demonstrated duodenal ulcer was approximately 97% in 349 radiologic examinations on 264 patients. There was excellent correlation between healing of the duodenal ulcers and the disappearance of interscapular tenderness. Only 3 of 81 patients showed persistent tenderness after radiologic healing of a previous duodenal ulcer.

Courtesy of References and Reviews
Journal of the American Medical Association

Lawson, J. D. Amer J Med Sci 244:717 Dec 1962

GASTRIC ACID

The expressions "free acid" and "total acid," introduced by Prout (1824), were apparently justified by the experiments of Michaelis (1926) who noted that the titration curves of gastric juice collected during fractional test meals were not smooth, but "were almost rectangular in shape." However, this shape was due to the buffering capacity of the test meal he used, because the titration curves of gastric juice collected after the injection of histamine are similar to that of 0.1 N NC1. The continued use of Topfer's reagent (dimethyl-amino-azobenzene) is therefore not justified and the concept of "free acid" meaningless because nonneutralized hydrogen ions will be present until the titration has been continued to pH 7. The term "total acid" is confusing and should be replaced by the expression mEq/liter.

Courtesy of References and Reviews
Journal of the American Medical Association

Bock, O. A. A.
Lancet, 2:1101 Nov 24 1962

ADDISON'S DISEASE

This paper concerns some of the principles and techniques that have been found most helpful in the diagnosis and treatment of patients with adrenal insufficiency in the wards and clinics of the Peter Bent Brigham Hospital.

In making a diagnosis of Addison's disease, it is very important to know the range of normal values at one's own laboratory for baseline values of 17 hydroxycorticoids and 17 ketosteroids and the "normal" increase after 2 consecutive days of ACTH administration. The authors prefer 24-hour urinary determinations of steroids to measure the over-all secretory response of the adrenal gland to ACTH stimulation. If the suspicion of Addison's disease is moderate or high, the patient should be given an oral dose of 1 mg. of dexamethasone or fludrocortisone 1 hour before the start of the infusion of ACTH, so as to protect against an anaphylactic reaction to the foreign protein (ACTH). Failure of urinary steroids to increase on day 1 or 2 of ACTH requires another 1 or 2 days of ACTH to differentiate an adrenal working poorly but at its maximum (Addison's disease) from an adrenal with a greater potential due to prior atrophy (pituitary disease or atrophy due to suppression by previous administration of exogenous steroid).

The simplest way to replace the deficient steroid in the patient with adrenocortical insufficiency is by administering cortisone acetate and fludrocortisone acetate. So as to simulate the normal diurnal variation, the average patient may take 25 mg. of cortisone and 0.1 mg. of fludrocortisone with breakfast and 12.5 mg. of cortisone with supper. Despite the avoidance of taking these medications on an empty stomach, about half of patients develop upper gastrointestinal symptoms and many have ulcer or duodenal deformity that may be demonstrated radiologically. In case of ulcer or ulcer-type symptoms, a single intramuscular injection of 25 to 50 mg. of cortisone acetate may be given each morning in association with routine treatment for peptic disease; if a mineralocorticoid is needed, an intramuscular injection of 2.5 to 5 mg. of desoxycorticosterone in oil may be given in place of fludrocortisone. Many patients with partial adrenal insufficiency will require lower amount of cortisone and may require no fludrocortisone at all; a few may be oversensitive even to the minimal sodium-retaining effect of the maintenance dose of cortisone and may therefore require prednisone, methylprednisolone, or dexamethasone in place of cortisone. Steroid dosage should be increased during times of stress; dosage schedules are recommended for various degrees of stress.

Patients with Addison's disease should be informed that, with a minimum of common sense and care, they should be able to lead perfectly normal lives in all respects. Their life expectancy actually surpasses that of normal individuals because they have a built-in "check-valve" against some of the common diseases such as congestive failure and hypertension.

Courtesy of Farley Manning Associates
New York, New York

Cahill, George F., Jr.; Thorn, George W.
Med. Clin N Amer 45:1191-1200 September 1962

Continued

ULCERS IN EMPHYSEMA

The findings reported in this article confirm previous reports in the literature about the frequent association of chronic pulmonary emphysema and gastroduodenal ulceration. In addition, this study demonstrates that there is an increased incidence of peptic ulcers in patients with mild and moderate emphysema as well as in those with severe disease. The majority of the ulcers detected were duodenal. Ulcer complications were slightly more frequent in patients with emphysema than in the general ulcer population. Bleeding was the most frequent complication.

Courtesy of References and Reviews
Journal of the American Medical Association

Kroeker, E. J., and Leon, A. S.
Dis Chest 42:413 Oct. 1962

SURGERY FOR ULCERS

The combined operation represents a physiological approach to the treatment of the complications of duodenal ulcer. Vagal innervation mediates stimulation of acid secretion directly and indirectly through vagal gastrin release. These effects are eliminated by vagotomy. The antrum is the source of gastrin, a direct stimulant of acid secretion. Antrectomy eliminates gastrin and the gastric phase of acid secretion. These procedures also reduce parietal cell sensitivity to all forms of stimulation. Gastrointestinal reconstruction by gastroduodenostomy allows pancreatic stimulatory and duodenal inhibitory mechanisms to continue to function, places the stoma in an area which is more resistant to digestion than is the jejunum, and is associated with a low incidence of severe postgastrectomy syndromes. The 3,152 cases collected from the author's personal experience and from reports in the literature, show the combined operation to have an acceptable operative mortality rate and a low incidence of recurrence.

Courtesy of References and Reviews
Journal of the American Medical Association

Harkins, H. N.
Arch Surg 85:936 Dec 1962

BLEEDING VARICES

Although posterior pituitary extract has been shown to stop bleeding from esophageal varices, its effect has been transient, and it has apparently not decreased the mortality rate significantly. The authors evaluated the effect of pituitrin in consecutive patients with histologically-proven cirrhosis in whom the diagnosis of bleeding esophageal varices was established by esophagoscopy. Bleeding was controlled for at least 24 hours in 40% of 25 bleeding episodes in 16 patients, and for shorter periods in an additional group. All of the first 8 patients who received single infusions of posterior pituitary extract died, even though the hemorrhage was sometimes controlled transiently. Six of the next 8 patients, who were treated with multiple infusions of posterior pituitary extract administered more rapidly, more frequently and more regularly, survived the episode of bleeding. Based on these observations a tentative regimen for the treatment of actively bleeding esophageal varices is proposed.

Courtesy of References and Reviews
Journal of the American Medical Association

Conn, H. O., Dalessio, D.
Ann Intern Med 57:804 Nov 1962

INFERTILITY

The records of 555 consecutive private patients complaining of primary infertility who had been seen over a 12-year period were analyzed. The primary cause of infertility was tubal in 131 patients (with 53 subsequent pregnancies), ovarian in 121 (53), seminal in 81 (29), cervical in 20 (7), uterine in 9 (2), endometriosis in 65 (19), age in 3 (1), nutritional in 5 (10), neurogenic and psychogenic in 11 (3), intercourse in 9 (2), and unknown in 90 (25). In the tubal group, the most effective measures were the X-ray and Rubin's test. In the treatment of ovarian problems, wedge resection operation was the most effective for correction of the Stein-Leventhal syndrome, cortisone for adrenal dysfunction, and progesterone for the luteal phase defect. Methyltestosterone (5 mg daily) used in patients with endometriosis effected symptomatic relief from pain and metromenorrhagia, but infertility was not strikingly alleviated. Infertility due to male factors alone was most successfully treated by donor insemination: 14 of 17 inseminated patients achieved a pregnancy. Hostile cervical mucus was most frequently caused by an endocervical infection which was treated with a broad-spectrum antibiotic. The other factors—uterine, age, nutritional, neurogenic and psychogenic, and problems associated with intercourse—were too seldom encountered and to individualized in treatment to warrant any broad conclusions. The overall pregnancy rate was 37%, and when corrected for adequate investigation and follow-up in a group of patients married over one year and between the ages of 20 and 35 years, this figure rose to 46%. The duration of infertility was of importance: the breaking point seemed to be between two and three years. After two years of infertility there was no appreciable difference in the pregnancy rate, while prior to two years the rate was appreciably better. The age of the patient was also of importance, and in this series, 30 years seemed to be the breaking point rather than 35, which has been indicated in previous studies.

Courtesy of References and Reviews
Journal of the American Medical Association

Jones, G., and Pourmand, K. Fertil Steril 13:398 Sept-Oct 1962

CANCER OF TONSILS

A series of 35 epidermoid carcinomas of palatine tonsil is reported, with an over-all 2-yr cure rate of 23%. The operation resulted in potential cures for 3 out of every 5 patients, while radiotherapy resulted in potential cures of 5 out of 28.

Courtesy of References and Reviews
Journal of the American Medical Association

Mead, P. Cancer 16:195 Feb 1963

CARCINOMA IN SKIN CYSTS

In 637 epidermal inclusion cysts and sebaceous cysts of the skin excised between 1935 and 1961, seven were found to have carcinomatous change in their wall. All but one of these were basal cell carcinomas arising in cysts on the head and neck. The one exception was an epidermoid carcinoma arising in a cyst on the chest. All lesions were treated by local excisions. There were no recurrences with follow-up ranging from 4 mo to 18 yr.

Courtesy of References and Reviews
Journal of the American Medical Association

McDonald, L. Arch Derm 87:208 Feb 1963

APPENDICITIS AND PREGNANCY

The clinical charts of all patients at the Los Angeles County General Hospital with diagnosis of pregnancy and appendicitis between 1957 and 1961 were reviewed. There were 36 cases of clinically diagnosed appendicitis among 74,000 obstetrical patients (0.05%). The true incidence is difficult to determine from hospital records in which data on incidence are usually limited to cases in which a diagnosis of appendicitis is confirmed at operation. It was shown that the fetal and maternal morbidity and mortality were decreased when a definite operative procedure was done early. The difficulty in diagnosis is increased by the necessary consideration of pyelonephritis and twisted ovarian cyst. Rupture of the appendix increased hazards to maternal and fetal survival. It was noted also that threatened premature labor may indicate a ruptured appendix. Emergency operation with the use of antibiotics was effective in such cases. The incidence of premature delivery was proportionate to the delay in operating. If operation was performed in less than 8 hours after admission to the hospital, there was no maternal or fetal loss. A delay greater than 8 hours resulted in a 17% fetal loss in premature delivery and 4% fetal loss of infants at term.

Courtesy of References & Reviews
Journal of the American Medical Association

King, R., and Anderson, G.
Calif Med 97:158 Sept 1962

CATARACTS AND CORTICOSTEROIDS

Publications by other investigators on the possible association between long-term systemic corticosteroid administration in rheumatoid arthritis and posterior subcapsular cataracts (unconfirmed by others) inspired an investigation involving 56 patients so treated for rheumatoid arthritis and other conditions. The incidence of lens changes in the rheumatoid arthritis patients was found to be 38 per cent and 17 per cent in the chronic asthma cases. The dosage and duration of systemic corticosteroid therapy appeared to be the crucial factors in lens changes. In this series, subjective complaints were minimal. The authors report that although the lens opacity was in marked evidence during ophthalmoscopic examination there was small objective reduction in visual acuity. Patients seldom complained of visual distortion or reduction and often questioning was necessary to elicit complaints. In response to direct inquiry patients generally told of slight photophobia and increase in glare disturbance. The authors note that these findings may lend an additional note of caution in use of systemic corticosteroids; where they are given on a chronic basis every effort should be made to keep dosage to a minimum.

All the patients had received sustained corticosteroid therapy for six months or more. Diagnostically the 56 subjects were distributed as follows: rheumatoid arthritis, 38; chronic bronchial asthma, 12; systemic lupus erythematosus, 5; dermatomyositis, 1. As controls, another 24 rheumatoid arthritis patients who never received systemic corticosteroids were also examined. History included careful inquiry into previous ocular disease or injury, radiation exposure, and other disease states commonly associated with lens changes. All underwent complete ophthalmologic examination, including tonometry. The same was done for the 24 controls.

No lens changes were found in the 24 patients who had never received corticosteroids. Rheumatoid arthritis (36 patients): Posterior subcapsular cataracts were unequivocally present in 14; in 11 bilateral and in 3 unilater.

Bronchial asthma: The 2 patients in this group showing lens changes had been on moderate dosage for over four years. None of the lupus or dermatomyositis patients showed lens changes.

Courtesy of Medical Abstract Service
Berwyn, Illinois

Giles, C., Mason, G., Duff, I., and McLean, J., JAMA 182:719722 November 17 1962

DUMPING SYNDROME

Results obtained during these experiments in mongrel dogs lend credence to the proposition that serotonin plays an important role in activating the series of pathophysiologic events known as the "dumping syndrome."

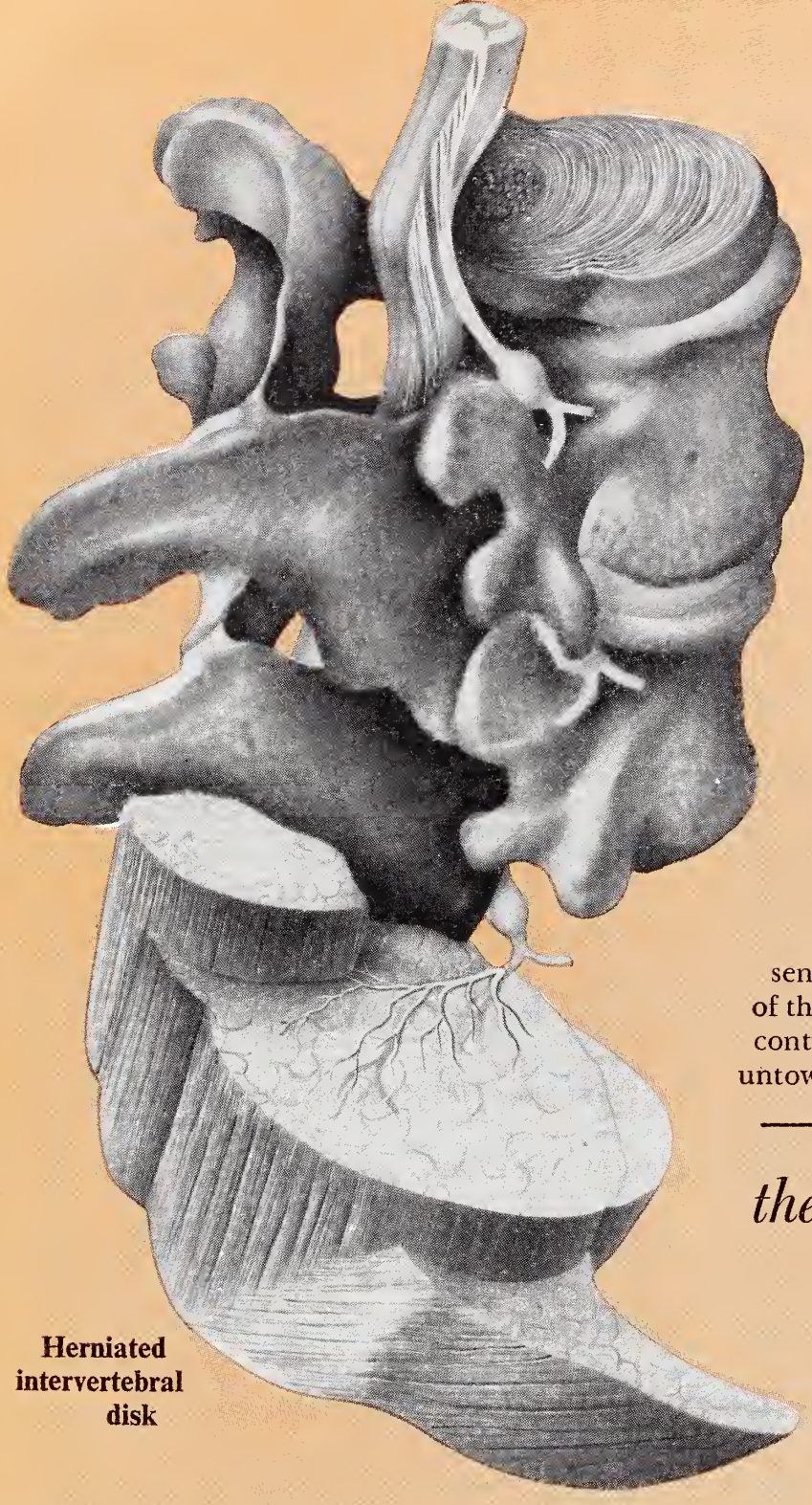
It was possible to demonstrate that a pattern of "dumping parameters" was attainable after the intrajejunal administration of hypertonic glucose or after infusion of serotonin creatinine sulfate (Upjohn). It was assumed that there was a release of serotonin from the argentaffin cell mass of the small intestine associated with the dumping syndrome, since such a release was demonstrated during studies involving administration of glucose. A known competitive inhibitor of serotonin, UML-491 (l-methyl-d-lysergic acid butamine tartrate), was used during an experiment that seemed to indicate the importance of serotonin in initiating the vasomotor response of "dumping."

Although many theories have been suggested to explain the multiplex physiologic derangements of the "dumping syndrome," a single unified concept has not been possible until this demonstration of the role of serotonin in initiating the process. Now, a logical sequence of events can be outlined. The effects of serotonin on the cardiovascular and gastrointestinal systems seem to the authors to be the unifying link in the picture. Hypermotility of the bowel with diarrhea, borborygmi, cramps, and abdominal discomfort can be attributed directly to established effects of serotonin, while tachycardia, dizziness, weakness, palpitations, and feelings of warmth may, in considerable measure, be attributed to this amine also. Moreover, current experimental work indicates that elevated blood serotonin levels have the ability to stimulate adrenal activity, thereby heightening the degree of vasomotor changes in "dumpers." The major unanswered question of why some persons will experience severe dumping following gastrectomy while others are free of difficulty must be answered on theoretical grounds alone at the present time. The authors' current working hypothesis center around (1) variations in argentaffin cell mass and distribution and (2) rate and intensity of the stimulation of these cells.

Courtesy of Farley Manning Associates
New York, New York

Peskin, G., Miller, L., Arch Surg 85:701-704 November 1962

End



Herniated intervertebral disk

When pain is prominently associated with skeletal muscle spasm, ROBAXISAL effectively combats both pain and spasm. If sedation is also indicated, prescribe ROBAXISAL-PH.

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---

the patient had

*'pain & spasm'**



*Skeletal muscle spasm is a two-headed dragon of 'PAIN & SPASM'

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(Warning: May be habit-forming)

A. H. ROBINS CO., INC., Richmond 20, Virginia

Special Articles

The British Nationalized Health Service *

GEORGE WINDER†
England

In 1948, when a socialist goverment established the British National Health Service, it took over a medical system well up to the standards of the time.

Yet that government seems to have been quite certain that once in the control of the state this system would improve. The expected cost of the new National Health Service had an estimate of £170 million a year. This was less than the £180 million which all medical services were believed to have cost the people in private expenditure before the war.

Britain's National Health Service has now functioned for fourteen years, so let us see to what extent the high hopes for it have been fulfilled.

The Estimate Was Low

The first and most obvious fact is the gross error in the forecast of costs that was made by Lord Beveridge. In its first year the nationalized service cost not £170 million but £377 million. The figure has risen year by year; in 1960 it cost £820 million of which only £23 million was for capital expenditure.

The British Cost of Living index shows that most prices were multiplied by three between 1938 and 1960. Medical costs, however, are more than four and a half times what they were. This, as we shall see later, has been due, not to any increased remuneration going to doctors, but chiefly to increased hospital expenses.

The rising costs of drugs and pharmaceutical preparations have also been of concern to the government. In 1950 these were £37 million and in 1960, £89 million.

Better Service?

Under the old system of free enterprise the doctor was an authoritative master, a trusted friend, and at the same time a servant of his patient who must pay his fee. Under the system now practiced in Great Britain, much of this excellent relationship is undoubtedly retained; nevertheless, it is interrupted by an invisible stranger in the form of a higher medical authority peering over the doctor's shoulder with power to criticize his work and inflict a fine upon him if he is too experimental in his treatment or prescribes too many expensive drugs. The doctor is no longer the servant of the patient but of the National Health Service.

To the man who is ill, the fact that he can call on a doctor and pay no fee seems to be such an obvious boon that he usually is oblivious to the price he is in fact paying. Thirteen per cent of the cost of the National Health Service is paid in National Insurance Contributions. This supposedly free medical service costs an average of over a pound per week per family. One would have to be very ill to pay more than this in direct fees.

Hospital Shortage

Since the inception of the National Health Service, building of hospitals has almost ceased. Only one hospital was built in thirteen years. The government has been far more cautious in its capital expenditure than the most conservative of private concerns. Overwhelmed by the unexpected and ever-increasing cost of its Health Service, it has tried to keep down expenditure by checking expansion.

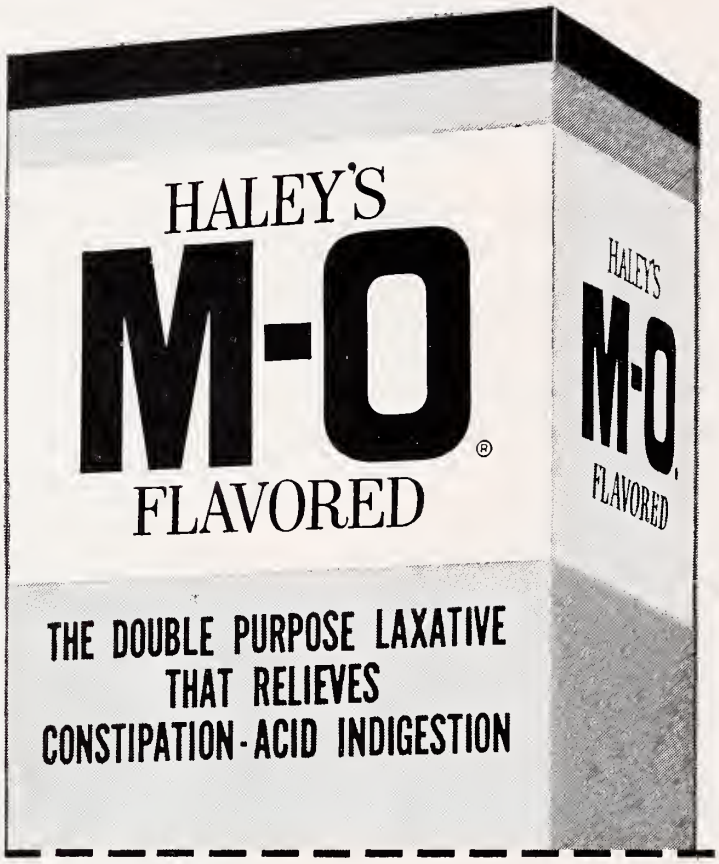
In "The Genesis of the British National Health Service" written by the well-known economist John Jewkes and his wife, the authors point out that in 1939 Great Britain was more amply supplied with hospital beds in proportion to population than the United States, but that since the war this advantage has disappeared.

Switzerland, which for the most part is still under the competitive system, has more doctors and many more hospital beds per 1,000 of population. Between 1948 and 1959, money spent on

Continued

*Excerpts from THE FREEMAN 12:8 Aug. 1962.
†Mr. Winder, formerly a Solicitor of the Supreme Court of New Zealand, is now farming in England. He has written widely on law, agriculture, and economics.

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hospital building per head of population was four times as great in Switzerland as in comparatively wealthy Great Britain. Waiting lists in Swiss hospitals are literally unknown.

What the Poor Had To Lose

It may be argued that at least the poor have benefited by not having to pay the doctor's fees. Even this is doubtful.

The crowded surgeries are not due so much to really sick people asking for treatment they could not previously afford as to the desire of many people to have free treatment for the slightest cold or illness. Before nationalization, a really sick person was sure of treatment whatever his financial means. Now, with the many claims on the doctors' services, a sick person may fail to get the attention his illness requires.

In 1960 health service cost them £820 million, their beer and spirits cost £1,001 million and their tobacco £1,140 million.

An Ambiguous Position

The doctor who originally believed he could get the best of both worlds by having both paying and state patients soon found that the vast majority preferred to register under the state system, thus retaining his services at no apparent cost to themselves. The result is that all but a few British doctors now depend on the National Health Service for a living.

The general practitioners employed by the National Health Service are paid, not according to the amount of work they do or the number of patients they attend, but according to the number they can persuade to register on their panel for medical services.

A general practitioner is allowed to have up to 3,500 registered patients, yet doctors claim that about 1,500 is all they can properly attend. For each patient on his panel, a doctor now receives 19/6 ($2.73) a year —. Out of his capitation fee the doctor must pay the costs of his surgery and the wages of his receptionist or nurse. The fee is the same for the doctor who employs capable assistants and uses the most modern equipment as for the doctor who gets along with the aid of a stethoscope and an overworked wife. For more income a doctor must have a large panel of patients, which will mean a crowded surgery, hurried interviews, and often a snap diagnosis. The system places a premium on bad and hasty service.

Passing the Buck

There is a minimum service which the doctor feels compelled to perform. Most, if they can possibly do so, send their more troublesome jobs to the hospitals, thus adding to the already excessive demands upon those institutions. Simple operations, formerly taken in stride, now are handled this way, as are such time-consuming jobs as a check-up to find out the patient's general state of health. The District Medical Executive Councils forbid the general practitioner to do a number of jobs which were formerly within his province. In most areas, he is not allowed to do X rays or blood tests or perform regularly on women patients the cancer-warning Papanicolous test.

Since nationalization, the people have developed a habit of suing their doctor in the Law Courts for negligence. This again makes the general practitioner reluctant to do more than the minimum required of him. After all, there is a limit to the responsibility one can undertake for 19 shillings and 6 pence.

Third Party Medicine

In the past the doctor was responsible only to his patient and to public opinion. Now he has a higher authority which he must conciliate. He may be told, for example, by his District Medical Executive Council that he is giving his patient too many drugs of an expensive kind and that his drug bill which the state has to meet is above the average for his district. If these excessive costs are continued, he may be required to pay a proportion of the bill himself.

Occasionally the public is regaled in the press with a list of fines inflicted on doctors who have committed such offenses as failing to answer night calls. In 1960, disciplinary action was taken against doctors in 410 cases.

Doctors Are Leaving

Between 1956 and 1960, of doctors trained in British medical schools, 1,070 have emigrated to Canada, 1,100 to Australia, 190 to New Zealand, and 750 to the U. S. Last year, one-third of the medical students who qualified in Great Britain left the country.

Perhaps the greatest tragedy is that the generation of Britons now getting to manhood may unquestioningly accept the National Health Service, for they never will have known anything better.

End

Duluth-May, 1963

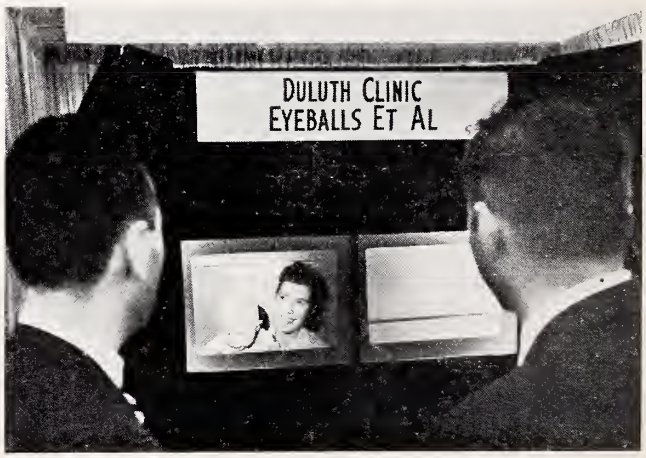
Honored Annual Meeting guest, American Medical Association President, Doctor George M. Fister, (center) is shown as he talked with Doctor H. E. Drill, Hopkins, (left) director of the American Academy of General Practice, and Doctor A. E. Ritt, St. Paul, (right) American Academy of General Practice President. One of the added features of the 110th Annual Meeting scientific program was the approval of the Tuesday, May 21 session for Category I credit by the Academy of General Practice. This "first" was sponsored jointly by the Minnesota Academy of General Practice and the Minnesota State Medical Association.





EXHIBITS ON DISPLAY . . . More than 150 scientific and technical exhibits were on display at the Duluth Armory during the annual Minnesota State Medical Association meeting. Exhibits representing new medical techniques, results of medical surveys and developments in medical and surgical equipment were displayed.
(Photographs courtesy of Duluth News-Tribune).

OUTSTANDING SCIENTIFIC EXHIBIT . . . The Duluth Clinic's exhibit, "Eyeballs et al." received the Southern Minnesota Medical Association medal as the outstanding exhibit during the State Medical Association meeting Tuesday, May 21. Doctors who prepared the exhibit were J. C. O'Neil, W. J. Slack and K. R. Fawcett. Exhibits from St. Mary's Hospital, Duluth, and from Dr. Stewart Arey, Minneapolis, received honorable mention in the competition.



Medical Economics

Highlights of 110th Annual Meeting Reviewed

Duluth, the convention and vacation capital of the Northland was the setting for the 110th Annual Meeting of the Minnesota State Medical Association. Total registration for the three-day program of business and scientific session was 1,988, including 937 physicians. One of the added features of the 110th Annual Meeting scientific program was the approval of the Tuesday, May 21 session for Category I credit by the Academy of General Practice. This "first" was sponsored jointly by the Minnesota Academy of General Practice and the Minnesota State Medical Association. According to informal estimates, approximately 40% of the physicians who registered participated in this new feature.

Doctor J. P. Medelman, St. Paul, was named President-elect at the closing session of the House of Delegates. Presently Doctor Medelman is serving as Councilor for the Fifth District. Other officers elected included Doctors: John G. Lohmann, Pipestone, First Vice President; John C. Feuling, Duluth, Second Vice President; Barnard Hall, St. Paul, Secretary; Karl W. Anderson, Minneapolis, Treasurer; John L. Falls, Red Wing, Speaker of the House of Delegates; John T. Pewters, Minneapolis, Vice Speaker of the House of Delegates; H. E. Wilmot, Litchfield, Councilor of the Third District; John W. Gridley, Arlington, Councilor of the Fourth District; Delmar R. Gillespie, St. Paul, Councilor of the Fifth District (to fill unexpired term of Doctor Medelman); O. L. N. Nelson, Minneapolis, Councilor of the Sixth District; George A. Sather, Fosston, Councilor of the Eighth District; O. J. Campbell, Minneapolis and A. E. Ritt, St. Paul, Delegates to the American Medical Association; and C. L. Oppegaard, Crookston, and Donald McCarthy, Minneapolis, Alternate Delegates to the American Medical Association.

The University of Minnesota Medical School received a $21,400.47 grant from the Minnesota State Medical Association at the opening session of the House of Delegates Sunday, May 19. The check was presented to Doctor Robert B. Howard, Dean of the Medical School by president Doctor Donald McCarthy. The grant was part of the record $1,461,810.92 contributed in 1962 to AMA-ERF (American Medical Association Education and Research Foundation) for medical schools by physicians and their families throughout the country.

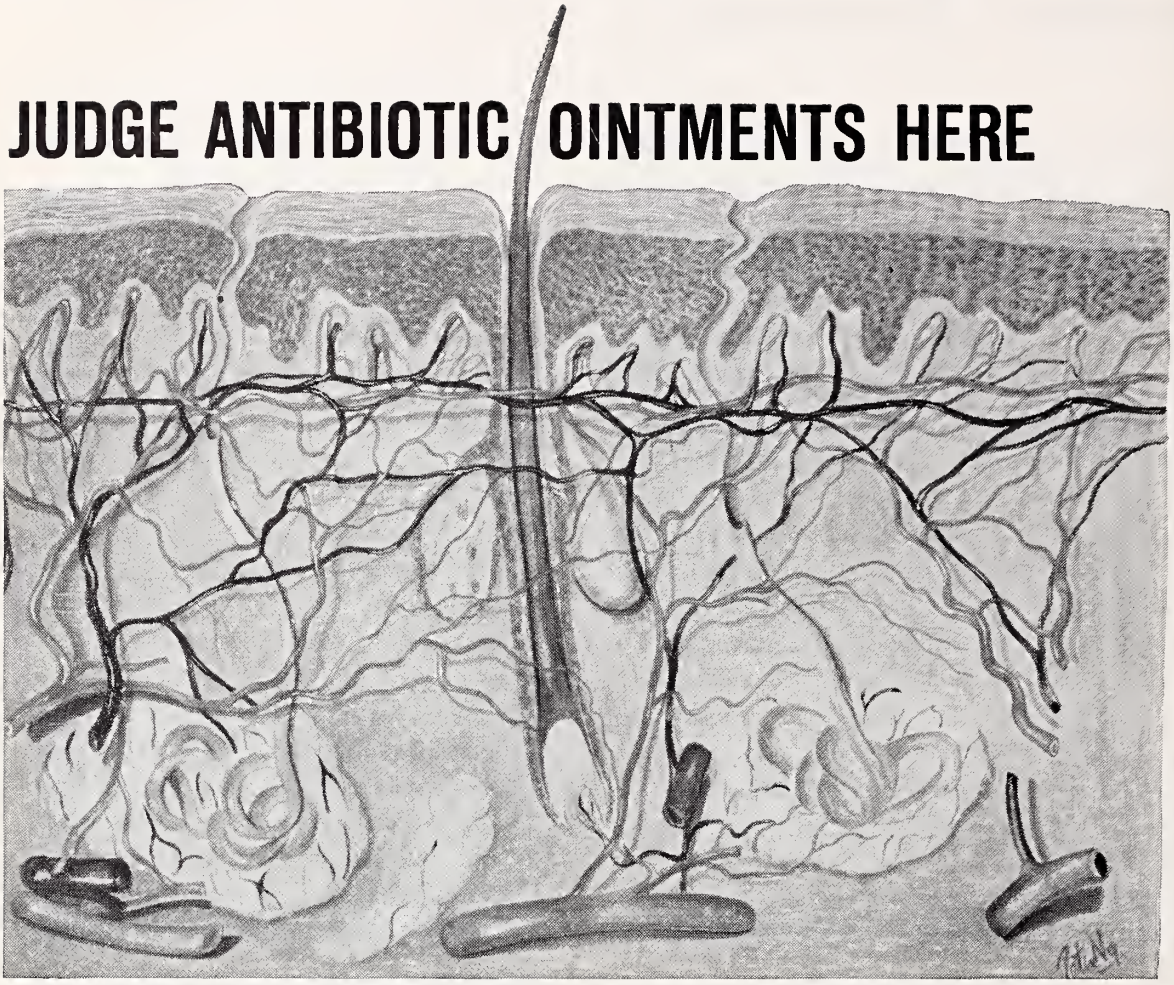
Mr. Roland Roy Larter of Lancaster, Minnesota, the recipient of the 1963 Rural Medical Scholarship was introduced to the Delegates on Sunday afternoon. He will receive $1,000 a year for four years provided that he practices medicine for at least five years in a rural Minnesota community in need of a physician.

A number of important actions were taken by the delegates on Sunday afternoon and Tuesday morning. Delegates unanimously voted their support for a change in court rules of civil procedure which would alter Minnesota law to allow physicians to give medical testimony in court regardless of the patient's wish. Under the present code a physician may not be subpoenaed to testify if the patient does not give permission. The resolution urged the Supreme Court to change court rules to permit them to do so.

In another resolution, delegates pledged their support to a new program for training "family" doctors which is currently under consideration by the University of Minnesota Medical School. The preceptorship plan, if adopted, would make it

Continued

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possible for medical students in their junior and senior year to work directly under the training supervision of a family doctor in active practice.

Delegates also approved continued pilot cancer detection studies in Minnesota under the supervision of the Minnesota State Medical Association Cancer Committee.

They also voted continued support for the Minnesota State Medical Association Pre-School Visual and Hearing Program which is conducted on a cooperative community basis under the sponsorship of the Committee on Ophthalmology. Mrs. John Stoltz of Stillwater who has served as volunteer director of the program received a special vote of thanks from the delegates. The Committee on Conservation of Hearing was directed by the delegates to conduct a vigorous program, directed toward protecting workers against the damaging effects of noise in industry. During the course of discussion of noise abatement it was pointed out that Minnesota lags behind a number of other industrial states in initiating programs to curb damaging noise in industry.

The House unanimously approved a reference committee report which recommended that more stringent measures be taken to insure registry and inspection of x-ray equipment in doctors' offices. The Committee noted that the law requires such registry and inspection.

Also approved was a reference committee recommendation to return to the former method of raising funds for the American Medical Association Education and Research Foundation (AMA-ERF). Future solicitations will be conducted by local district and county medical societies rather than by the American Medical Association.

In a supplementary report to the delegates, Doctor R. P. Buckley, Chairman of the Council announced that he would appoint a committee on Medicine and Religion in accordance with the request of the Reverend Doctor Paul B. McCleave, new head of the American Medical Association's recently established Department of Medicine and Religion. Doctor Buckley asked delegates and county societies to make recommendations to him of members for this committee.

Also approved by the delegates was the recommendation by Doctor Buckley that the Committee on Scientific Assembly be appointed on a more permanent basis. This will permit the planning of Annual Meeting programs more than one year in advance. The action taken also provides for the election of a chairman from the members of the committee with the understanding that the president-elect shall become a member of the Committee on Scientific Assembly each year.

Doctor Buckley announced that Doctor Les N. Dale, Red Lake Falls, will continue to serve for the next two years as chairman of the Committee on Public Policy. At the suggestion of Doctor Dale, resolutions were adopted expressing appreciation to authors of bills of particular interest to medicine which were passed and signed into law during the 1963 legislative session. Included were the following: The bill to give full licensure to osteopaths, the bill to implement Kerr-Mills in Minnesota, the bill to relieve doctors of the threat of libel and slander in filing reports of disability under the social security law and the bill providing medical corporations to conform to new regulations of the Treasury Department.

Minneapolis was selected as host for the Annual Meeting in 1965 because the American Bowling Congress will be meeting at that time in St. Paul. Also confirmed was the action taken in 1962, accepting the invitation of Rochester to meet there in 1964. The dates for next years meeting are May 18, 19, and 20.

A jest breaks no bones.—Samuel Johnson

One of the two horns of my dilemma.—Laurence Sterne

A fellow feeling makes one wondrous kind.—Dr. David Garrick

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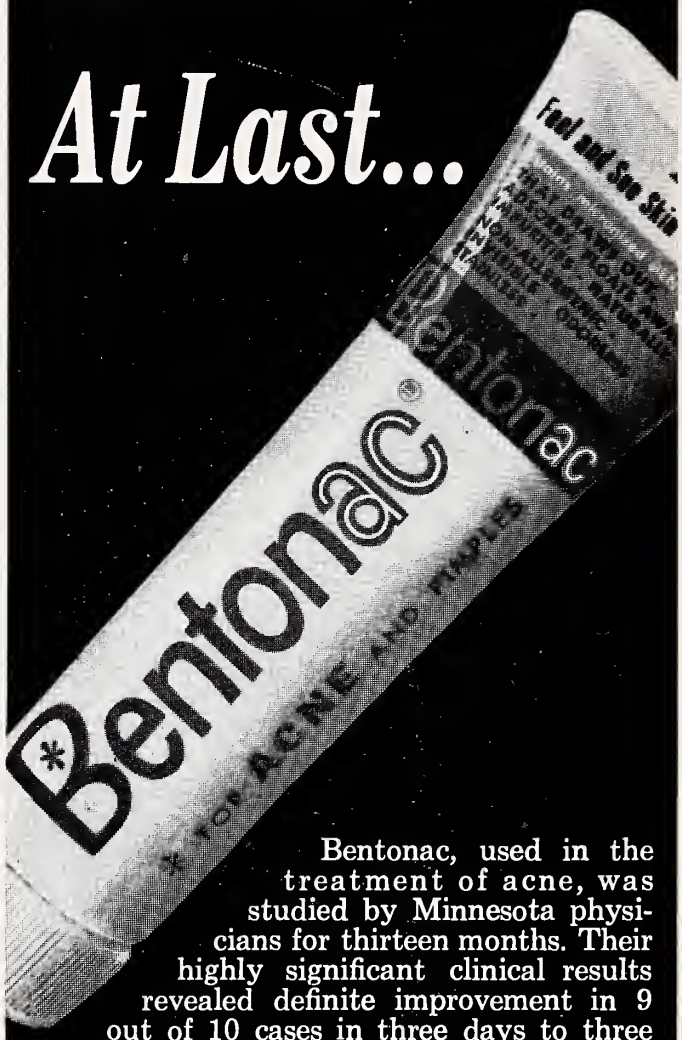
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Fedicare or Freedom

Editors Note. . .

Presented by American Medical Association President Doctor George M. Fister. Dr. Fister, the 116th President of the American Medical Association, was an honored guest at the 110th Annual Meeting of the Minnesota State Medical Association in Duluth. Physicians attending the meeting had the privilege of hearing Doctor Fister adress the House of Delegates at its closing session Tuesday, May 21, 1963. Because of the importance of Doctor Fister's remarks, all physicians are urged to read the following text of his message:

I am sincerely happy to be with the Minnesota State Medical Association today here in Duluth on the homestretch of my two-year term as President-elect and President of the worlds greatest medical organization, your AMA.

I also want to tell you that I recently participated in one of the most inspiring meetings it has been my privilege to attend. This meeting was the annual session of the National Science Fair in Albuquerque where the two winners of the AMA scientific awards were selected. These two youngsters — one from Florida and one from New York — you will meet in Atlantic City next month during the Annual Meeting of the American Medical Association, and you will see their superb scientific exhibits.

I was truly amazed at the quantity, quality and variety of scientific exhibits and work displayed by the hundreds of young people at the National Science Fair. I hope that each of you someday has an opportunity to attend one of these events. It certainly will convince you that we need not worry about the development of new, young recruits in all fields of the life and mechanical sciences.

But I do believe that we must worry about the atmosphere of freedom in which these young people must work during their careers of the future.

And please do not think that this phrase, "the atmosphere of freedom" is some kind of platitude. It is real. It is living. It is absolutely necessary as you and I have learned during our years of practicing medicine.

Perhaps we have taken it for granted. Perhaps we still do. In our time we have not seen any violent abridgments of our own freedom as other nations have experienced. And so we have become somewhat apathetic to any warning about the possible loss of freedoms.

But as I have said, freedom is more than a word. And it is only one step, one day, one year or one generation away from destruction — if there are not those who would defend it, speak up for it, fight for it, lose everything for it and even die for it.

Perhaps each and everyone of us would do all these things in the face of a tyrant who would openly seek to destroy freedom and to establish a dictatorship.

But who among us would do all these things in the face of a government which takes away this freedom bit by bit, piece by piece, making slow but deliberate progress toward the eventual destruction of the freedoms we have enjoyed or still do enjoy?

In 1788 it was James Madison who warned the Virginia Convention this way:

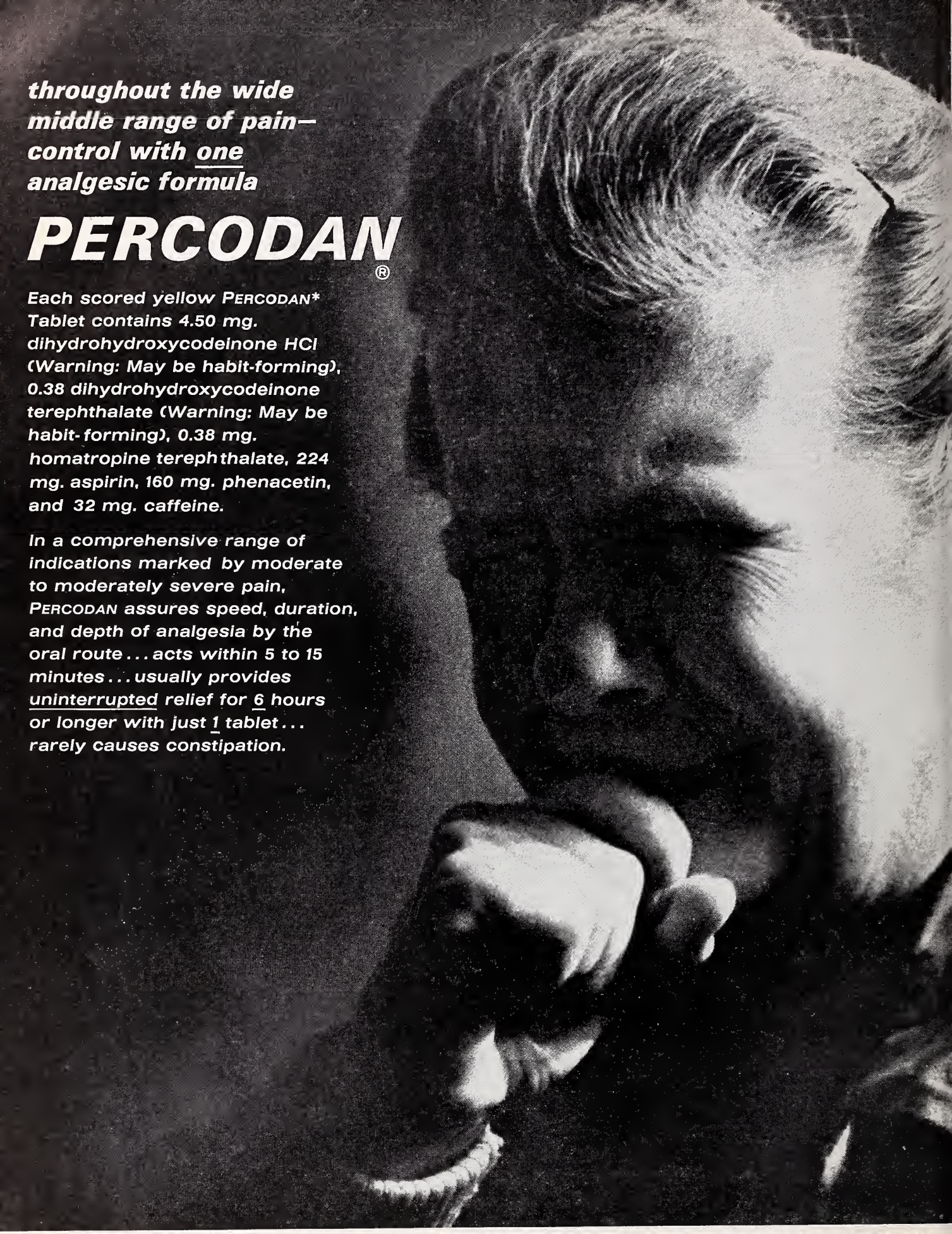
"Since the general civilization of mankind, I believe there are more instances of abridgment of the freedom of the people by gradual and silent encroachments of those in power than by violent and sudden usuppation."

Are not his words appropriate in our time, or at any time?

Is it not true that for three decades our nation has watched in almost helpless frustration at the "gradual and silent encroachments" of government on the freedom of the American farmer?

Is it not true that for two decades our nation has watched the attempts by government, by "silent and gradual encroachments," to reduce the freedom of American medicine? Fortunately, the medical profession, its allies and the American

Continued



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people have taken militant action for 20 years against these attempts to abridge doctor and patient freedom, and generally these attempts have been thwarted.

But the attempts continue. The threats go on almost relentlessly. And we do weary. We do sometimes falter in our fervor. We do wonder if victory will ever come.

And again we must turn to the words of a Revolutionary patriot for some stirring words of warning and advice:

"These are the times that try men's souls. The summer soldier and the sunshine patriot will, in this crisis, shrink from the services of his country; but he that stands it now, deserves the love and thanks of man and woman . . . Heaven knows how to put a proper price upon its goods; and it would be strange indeed, if so celestial an article as Freedom should not be highly rated."

And later in his work, "The American Crisis," Paine wrote:

"Those who expect to reap the blessings of freedom must, like man undergo the fatigue of supporting it."

I believe that it is more imperative now than ever before that we understand clearly the principles of freedom, individual incentive, individual reward, private enterprise and political liberty which have so greatly enriched the lives of the American people since Madison, Paine, and the Revolution. And we must heed the warnings of gradual and silent encroachment of government by our willingness and dedication to fight for the blessings of freedom so that the young men and women of tomorrow can work unfettered for the continued improvement of America's health.

As you well know, the implications of the current King-Anderson legislation are of the deepest concern to all Americans, not just to physicians or the health professions. The outcome of this legislative battle will have profound effects on the quality of medical care available to all Americans in the future. It will determine whether more of their economic and political freedom is whittled away, or whether the nation has profited from the bitter lessons of past government intervention in the private affairs of citizens.

Basically, the Administration is proposing to create a system of government-controlled health care for the aged. A substantial increase in Social Security taxes would finance hospitalization and nursing home care for everyone who has passed his 65th birthday without regard to an individual older person's financial need.

Millions of senior citizens who are self-supporting and able to take care of their own needs would thus be eligible for care at the expense of the younger generation. This would be an extravagant waste of public funds.

It would be a new burden on those raising families and buying houses — and paying their own medical expenses and insurance premiums. It would load the Social Security system with a new type of obligation that could be expanded almost without limits.

At the same time, the government would exact the power as provided in the King-Anderson bill to limit the extent and type of health care for millions of elderly Americans seeking benefits under the program.

The basic issue in this controversy is not health care for the aged versus no health care at all if the King-Anderson bill does not pass. This is what the Administration spokesmen would have the nation believe. Nothing could be further from the truth.

The issue is: How shall the care be provided? Shall the program be compulsory or voluntary? Shall added taxes be levied on wage-earners and employers to provide government benefits indiscriminately to a vast segment of the population, including millions of the self-supporting? Shall medicine be permitted to grow and flourish in freedom, or shall it be stunted and shriveled by the excesses of government control?

I believe that one of the first things all of us must do is to insist that the truth be told — accurately and honestly.

Secondly, all of us should tell the true story about King-Anderson and we should give the facts about new King-Anderson taxes and so-called "Contributions," about the compulsory aspect versus a voluntary selection of the mechanism of financing one's health care, about helping everybody or helping the needy and near-needy, about the real economic and health status of the aged as compared with the claims of "destitution" and "physical wrecks," about voluntary enterprise and government intervention, and about the true costs of Social Security medicine versus the claims of "pennies a day."

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Yes, let us all know the issues within this big issue of King-Anderson or Social Security medicine.

Then, let us tell this true story. And let us tell it everywhere.

I remind you that the Gallup Poll in December, 1961, showed that approximately 67 per cent of the American people favored some health care program via Social Security. But in February, 1962, this percentage has dropped to 55, in May it had dropped to 48, and later after the Madison Square Garden address of President Kennedy and Doctor Annis, the percentage of support dropped to 44 per cent.

Your job and mine is to continue to tell our story of truth so that the percentage of support for King-Anderson continues to drop. And I personally believe that the major responsibility for telling this true story is in *your* hands — *you* the physicians, *you* the county medical societies and *you* the state medical Associations.

One of the major points in our story must be the Kerr-Mills program and its rapid implementation.

As you know, your AMA has strongly supported a federal-state grant-in-aid type of program to provide health care to persons over 65 who need help. We supported the Kerr-Mills bills when they were first proposed and the Congress, by a large majority, adopted them. Since then we have worked closely with the state societies and other organizations to implement the Kerr-Mills Act as rapidly as possible.

In the brief time it has been on the statute books, Kerr-Mills has enjoyed a remarkable record of acceptance to fill the need for which it was designed. Today 93 per cent of the 17 ½ million elderly live in states that have enacted legislation under all or part of the Kerr-Mills law.

This is the record, the facts, and the truth. So when proponents of King-Anderson contend that Kerr-Mills is a failure, they simply are not telling the truth.

Likewise, when these same proponents of King-Anderson tell the American people that voluntary health insurance cannot do the job, or is not doing the job, of providing good coverage for the aged, they are not telling the truth.

Again it is a fact that at least 60 per cent of the aged, according to records of the insurance industry, already have protected themselves from the cost of illness through voluntary health insurance and pre-payment plans. And it is a fact that a wide variety of voluntary health insurance policies especially designed for older people has become available during the last two years.

I also remind you that millions more are protected by private pension plans, veterans' benefit programs, accumulated resources, or families willing to help. These elderly persons are not dependent on the expenditure of tax funds for their care.

So tell these truths to the American people so they will have the complete story.

And finally I ask you to know the full story of your American Medical Association because the King-Anderson proponents are using one of the oldest tricks to win support for their scheme. And that is to malign their opponent, and this undoubtedly is a deliberate and intentional part of their campaign.

If it were not, an attack on the AMA would not be a part of almost every discussion, speech and interview in which King-Anderson proponents participate.

For example, on May 4 the Illinois Democratic senator charged — and how many times have we heard this tired accusation — that the AMA has opposed all progressive legislation.

But the truth is that the AMA has compiled a long, distinguished and enduring history of achievement in advancing the science and art of medicine.

For the record, I remind you and the American public that in the last three sessions of Congress, or the last six years, the AMA has supported 51 bills while opposing only 14. A negative record? Hardly.

Let me also remind you and the American public that it was the AMA that urged establishment of state bonds of health, recommended a department of health in the president's cabinet, recommended the creation of the U. S. Public Health Service and the Federal Food and Drug Administration, supported and promoted the Kerr-Mills Law, pushed for proper labeling of household chemicals, endorsed the principle of a program of voluntary, contributory health insurance for federal employees, recommended and supported scores of important pieces of local, state and federal legislation throughout its 116 years for the improvement of the science of medicine and the betterment of the public health.

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This is the true story of the AMA, and you should be telling it to the American people and should be rebutting the mud-slinging tactics of our opponents when they falsely attack your Association and mine.

And remember this to: It is the AMA that is leading the fight to preserve the private practice of medicine, the freedom of patients and the free enterprise system in this country by opposing vigorously political schemes to place the control and domination of a great profession and the patients in the hands of the federal government.

If the Democratic senator from Illinois and the other proponents of King-Anderson consider this to be negative opposition, then so be it. But I place this kind of AMA action on the positive side of the ledger, and I believe that is where it belongs.

In the fight for freedom one must be opposed to government intervention and federal compulsion.

Medicine, doctors and the AMA always have been *for* freedom of patients, physicians and America. We always have been *for* the voluntary way and the free enterprise system. We do not intend to change or to back away from these convictions and these principles now in the fight against government — no matter how big it is.

Our basic position is sound if we keep up our courage, if we believe in victory rather than in defeat, if we don't yield to compromises which in effect undermine our entire position.

And if we all remember to tell our story often and effectively, we shall win.

Committee Report

From The Committee on Ophthalmology

Resume of Principles Affecting Interrelationship Between Physicians and Optometrists

Because of numerous inquiries made to the Committee on Ophthalmology by physicians in the state of Minnesota, it seems advisable to summarize the resolutions and actions taken by the AMA in past years, pertaining to the relations between physicians and optometrists.
Listed below are specific instances that have arisen with pertinent decisions and rulings.

I. Teaching of Optometrists by Physicians: Not Permitted

Resolution #77, 1955, AMA House of Delegates

"Resolved, That it is unethical for any doctor of medicine to teach in any school or college of optometry, or to lecture to any optometric organization, or to contribute scientific material to the knowledge of nonmedical practitioners."

II. Voluntary Associations Between Physicians and Optometrists:

Judicial Council Interpretation of 1955

". . . Voluntary associations with optometrists are unethical."

A. Partnerships:	Not Permitted
B. Sharing offices:	Not Permitted
C. Presence of optometrists during examination or during surgery:	Not Permitted

III. Employment of Optometrists by Physicians: Judicial Council opinion of 1960:

"It is unethical for a doctor to hire an optometrist as an assistant if the optometrist is held out to the public or to the doctor's patient as a doctor of optometry or as a licensed optometrist. It is not unethical, however, for a doctor of medicine to hire one who may have been trained or who may have a degree in optometry if the individual so hired is not held out or does not hold himself out to the public as an optometrist."

Continued

IV. Optometrist Tenancy in Buildings Devoted to Physicians Offices; Renting Space to an Optometrist by Physician Owner: Inadvisable

Opinion from AMA legal Division July 24, 1962 — The Judicial Council expressed the belief . . . "That such a relationship might lead to unpleasant consequences. Accordingly, the Council concluded that such a relationship was inadvisable."

V. Referral Practices

A. Acceptance of cases from optometrists; Permitted

B. Acknowledgement; Permitted with Qualifications

Resolution #79, 1955, AMA House of Delegates

"Resolved, That it is ethical for an ophthalmologist to indicate to an optometrist who has so referred a patient the nature of the condition in general terms, the nature of his interpretation of the condition to the patient (specifically the terms in which it was described to the patient by the ophthalmologist) and whether or not the patient has been placed under medical care."

C. Referral by a physician to an optometrist for refraction, contact lenses, low vision aids, or other; Not Permitted

Judicial Council (1955)

"The House has reaffirmed . . . it is a futile gesture to consult on a professional level with one who does not possess the same knowledge, training, experience, and ideals as the doctor of medicine.

It is suggested that for a more complete, yet concise treatise on the historical background as well as on the present position of organized medicine with reference to optometry, the physician should read:

"Medical Care for Eye Patients" JAMA 178: 495-497, November 4, 1961.

Glossary:

1. Digest of official actions, 1846-1958, AMA pp. 536-540 (available from Minn. State Med. Assn., Lowry Building, St. Paul)
2. Policy of the AMA in Regard to Professional Relations with Optometrists: Dept. of Med. Ethics, AMA, June, 1961.
3. Proceedings of the House of Delegates of the AMA, the 104th annual session June 6-10, 1955.
4. "Medical Care for Eye Patients," JAMA 178; 495-7, Nov. 4, 1961.
5. Medicine, Optometry and the Public Welfare; National Medical Foundation for Eye Care, 250 W. 57th St., N. Y. 19.
6. The Ancillary Worker in Ophthalmological Medical Practice; National Med. Foundation for Eye Care.
7. Contact Lenses and The Physician, Charles E. Jaeckle, M.D.; JAMA 179: 696-698, March 3, 1962.
8. Editorial: A Declaration of Medical Principle; Am. J. Ophth: 52:6, December 1961.

Note: Report was approved for and directed to be published in Minnesota Medicine by action of the Council on May 18, 1963.

DID YOU KNOW THAT:

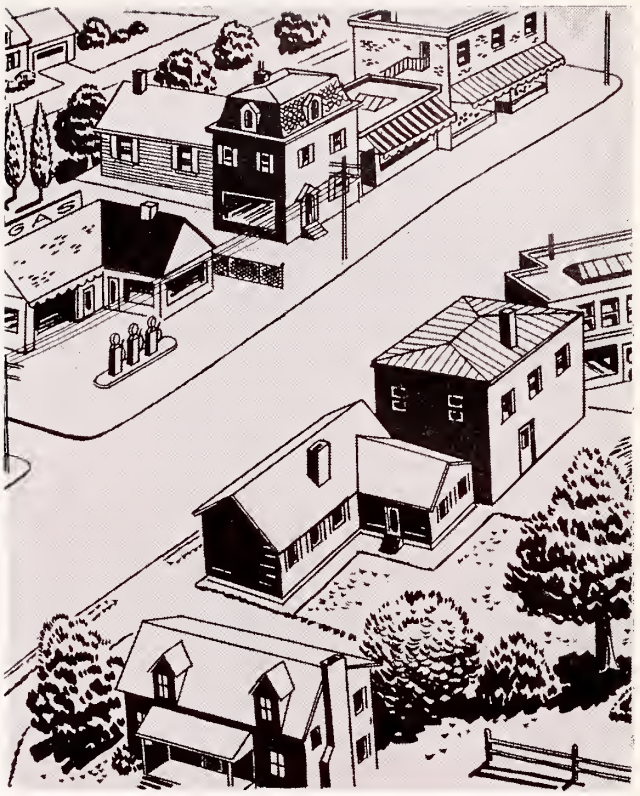
Rhinoplasty

Early Hindu physicians practiced plastic surgery?

"The Hindus of India became very good surgeons, and one hundred and twenty different surgical instruments have been described in their holy writings. They performed many operations . . . and were skillful at 'plastic' surgery. One of their special operations was making new noses for people, because an ancient Hindu penalty for misbehavior was having one's nose cut off."[1]

1. Garland, Joseph, M.D.: "The Story of Medicine," Page 15.

Your County Society's Role in



Operation Hometown

WHAT IS IT?

"Operation Hometown" is a nationwide, intensive, and continuing program intended to offset the mounting pressure in the 88th Congress for King-Anderson legislation, referred to by the medical profession as "Fedicare." It is planned specifically for every county medical society and each of its members. It is *your program* for helping, as an individual, to preserve the high quality of medical care now available to all your patients.

JOIN NOW

This year may well see the beginning of the end of America's high health care standards and the freedom of the medical profession—unless physicians and other community leaders take the initiative *now* in developing articulate and voluble public opinion against the inequities and extravagances proposed in this federal "Fedicare" scheme of high cost and low return.

IMPORTANT NOTICE . . . For an explanation of the new King-Anderson Bill now before Congress, see the insert in this issue.

PLAN NOW

"Operation Hometown" is being launched in your county and should reach every community in your county. For only at the "grass roots" can medicine and its friends rise up and defeat this idea. The medical profession's voice is a small one, and to be effectively heard in Congress, it must be amplified by a widespread public protest. **"Operation Hometown"** is designed to reach every segment of the American public through every possible medium, to stimulate every voter to let his congressman know that "Fedicare" is a costly concoction of bureaucracy, bad medicine, and fiscal trickery.

ACT NOW

"Operation Hometown" provides the tools and techniques for *your* county medical society to present the true facts about "Fedicare" to your fellow citizens. Do your part starting *today*. Offer to help your county campaign chairman to assure that medicine's voice is heard in your area. Your patients are counting on you.

Continued

How the Program Will Work in Your County

COUNTY CAMPAIGN CHAIRMAN

This is the top man in **"Operation Hometown"** in each county. His job is to co-ordinate the entire campaign in his county, whether he does all the work himself or has three others, or more, to help. He also will enlist interest and active participation of members of his county society and its auxiliary and arrange orientation.

MATERIALS DISTRIBUTION

Facts on the issue will be made known to the public through various campaign materials which will be distributed to physicians' offices, pharmacies, hospitals, and public areas.

NEWSPAPERS, RADIO, TELEVISION

The communications media offer indispensable outlets for reaching the greater number of people. Publicity opportunities, press statements, TV and radio scripts, tapes and films, and advertisements will be utilized.





CONGRESSIONAL CONTACT

Contact with congressmen has the main objective of providing accurate information to all congressmen on the issue—decreasing the efforts of the opposition. Tact, courtesy, and diplomacy will be used in this vital part of the campaign.

ENLISTING ALLIES

Securing the support of allies is vital for a complete community program. Multiplication of effort helps assure a continuous flow of information to audiences not always readily reached by the medical profession alone. This phase of the program will feature contact, program presentations, and co-ordination of organizational plans.

COUNTY SPEAKERS BUREAU

Through this activity medicine's spokesmen will be booked to speak before service clubs, civic groups, fraternal organizations, women's clubs, business and professional groups, and any and all appropriate public audiences.

LETTER WRITING

This part of the campaign will be a twofold activity. It will promote correspondence to both newspapers and congressmen. This point of expression will be most valuable to the entire campaign.

Summary of Fedicare

88TH CONGRESS 1ST SESSION **H. R. 3920**

IN THE HOUSE OF REPRESENTATIVES

FEBRUARY 21, 1963

Mr. KING of California introduced the following bill; which was referred to the Committee on Ways and Means

A BILL

To provide under the social security program for payment for hospital and related services to aged beneficiaries.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Hospital Insurance Act of 1963".

The Administration's New Social Security Hospital Medical Plan

- WHAT IT PROVIDES
- HOW IT IS FINANCED
- HOW IT WOULD WORK
- HOW IT BENEFITS

88TH CONGRESS 1ST SESSION **S. 880**

IN THE SENATE OF THE UNITED STATES

FEBRUARY 21, 1963

Mr. ANDERSON (for himself, Mr. HUMPHREY, Mr. BARTLETT, Mr. BAYH, Mr. BREWSTER, Mr. BURDICK, Mr. BYRD of West Virginia, Mr. CHURCH, Mr. CLARK, Mr. DOUGLAS, Mr. ENGLE, Mr. HARTKE, Mr. INOUYE, Mr. JACKSON, Mr. KEFAUVER, Mr. KENNEDY, Mr. LONG of Missouri, Mr. MANSFIELD, Mr. MCCARTHY, Mr. MCGEE, Mr. MCGOVERN, Mr. MCINTYRE, Mr. METCALF, Mr. MOSS, Mr. MUSKIE, Mr. NELSON, Mrs. NEUBERGER, Mr. PASTORE, Mr. PELL, Mr. RANDOLPH, Mr. RIBICOFF, Mr. WILLIAMS of New Jersey, Mr. YARBOROUGH, and Mr. YOUNG of Ohio) introduced the following bill; which was read twice and referred to the Committee on Finance

A BILL

To provide under the social security program for payment for hospital and related services to aged beneficiaries.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Hospital Insurance Act of 1963".

This is a summary of the latest version of the Social Security plan for providing certain hospital-medical benefits to the aged through higher Social Security taxes.

THE BILL

Title—Hospital Insurance Act of 1963.

Popular Name—King-Anderson Bill.

Introduced By — Representative Cecil King (D., Calif.) and Senator Clinton P. Anderson (D., N.M.).

Committees—House Ways and Means and Senate Finance.

Numbers—House: H.R. 3920; Senate: S.880.

Cost—Seven billion for the first five years (estimate of the Kennedy Administration).

BENEFITS

Payment would be authorized for:

1. **Inpatient Hospitalization.** Up to 90 days in semiprivate accommodations (two- to four-bed) subject to deductible of $10 for each of the first nine days of hospitalization, with a minimum deductible of $20.

In lieu of the 90 days of inpatient hospitalization, an individual could make an irrevocable election to receive: (a) 180 days of inpatient hospital services subject to a deductible equal to 2½ times the average per diem charges as determined and promulgated annually by the HEW Department (until 1967, the rate would be $37 a day) or, if less, the hospital's customary charges; or (b) 45 days of such services, not subject to a deductible. The election would have to be made one month before the month in which the individual attains age 65. If the individual attains age 65 prior to January 1, 1965, the election would have to be made between May and November, 1964.

TAXES

	Self-Employed	
	Present	Proposed
1963-64	5.4%	5.4%
1965	5.4%	5.8%
1966-67	6.2%	6.6%
1968 & thereafter	6.9%	7.3%

	Employee-Employer (each)	
	Present	Proposed
1963-64	3⅝%	3⅝%
1965	3⅝%	3⅞%
1966-67	4⅛%	4⅜%
1968 & thereafter	4⅝%	4⅞%

Note: If enacted, the employer's and employee's maximum tax in 1965 would be increased from $174 to $201.50. The increase for the self-employed would be from $259.20 to $301.60. In 1968, the taxes would be $253.50 and $379.60.

Note: Failure to make an election would provide election automatically of the 90-day, $90 deductible plan.

2. **Skilled Nursing Facility Services.** Up to 180 days in a hospital-affiliated institution.

3. **Home Health Services.** Up to a maximum of 240 visits during a calendar year.

4. **Outpatient Hospital Diagnostic Services.** During a period of 30 consecutive days subject to a deductible of $20.

Inpatient hospital services, outpatient diagnostic services, and home health services would be financed beginning January 1, 1965. Skilled nursing facility services would be financed beginning July 1, 1965.

The bill would declare it to be Congressional policy that nursing home services are to be used in lieu of hospital services, and that home services are to be used in lieu of nursing home or hospital services, where such services would suffice. It would also declare as Congressional policy that public assistance recipients should not receive less benefits under those programs as a result of the bill's enactment.

Continued

APPLICATION FOR BENEFITS

Payment for services would be provided only if a written request is filed by the individual (unless impracticable) and only if certified in writing by a physician that the type of services to be financed are medically necessary.

PAYMENT FOR SERVICE

If more commodious accommodations than authorized in the bill are provided and are not justified by medical reasons, payments could not exceed the reasonable cost of the services provided in semiprivate accommodations. A similar result would occur if more expensive services were provided. If less expensive services were provided, payment would be reduced appropriately.

NEW TRUST FUND

The bill would establish a new Federal Hospital Insurance Trust Fund which would consist of that part of the Social Security revenue earmarked for the program.

PROVISIONS

The bill would amend the Social Security Law by adding a new program under which inpatient hospital services, skilled nursing facility services, home health services and outpatient hospital diagnostic services would be provided to:

1. Any individual 65 years of age or over who is entitled to monthly insurance benefits under the Social Security Law or under the Railroad Retirement Act (which would be amended), whether or not he is receiving them.

2. Any individual 65 years of age who is not entitled to these benefits, who attains that age before 1967.

3. After 1967, anyone who has three quarters of coverage, whenever acquired, under the Social Security Law or Railroad Retirement Act for each year that elapses after 1964 and before he attains 65.

INDIVIDUALS NOT COVERED BY SOCIAL SECURITY

The bill would make any individual not eligible for Social Security or railroad retirement benefits, presently over the age of 65, or who attains that age before 1967, eligible for the authorized benefits. Other individuals not eligible for these programs, who become 65 after 1967, would be eligible for the benefits if they had three quarters of coverage, regardless of when acquired, for each calendar year elapsing after 1964 and before the year in which they attain age 65.

Persons in these categories would have to file an application for benefits in the form required by the HEW Secretary.

The bill would authorize the appropriation to the Federal Hospital Insurance Trust Fund of "such sums as the Secretary of HEW deems necessary" to pay for the benefits provided to individuals under this provision, the administrative expenses resulting from the provision, and any loss in interest that might result to the trust fund on account of such payments.

STUDIES AND RECOMMENDATIONS

The HEW Department would be required to carry on studies and to develop recommendations for Congress on:

1. The adequacies of existing facilities for health care provided under the bill.

2. Methods for encouraging further development of efficient and economical forms of health care which are a constructive alternative to inpatient hospital care.

3. The feasibility of providing additional types of benefits within the resources provided by the bill.

4. The effect of the deductibles upon beneficiaries, hospitals, and the financing of the program.

The bill also would require the HEW Department, as soon as practicable, to study the best ways of increasing the availability of skilled nursing facilities' care to beneficiaries. The department would be required to report to Congress the results of the study and actions taken by July 1, 1966.

MISCELLANEOUS

The HEW Department would be required to consult with providers of hospital or other medical services and with health insurance companies, and with state and other organizations for the purpose of encouraging protection which supplements the services authorized by the bill.

To advise the department on administration of the program, there would be created a 14-man Hospital Insurance Benefits Advisory Council, at least four of whom would be persons outstanding in the fields pertaining to hospitals and health activities.

The amendment would also increase the maximum cash primary benefit under the regular Social Security retirement program from $127 per month to $134 per month. The maximum family benefits would be increased from $254 to $268 per month.

TWO DEFINITIONS OF INTEREST

Osteopathic. The term "physician," as used in the bill, would include an osteopathic practitioner legally authorized to practice surgery or medicine by the state in which he performs his services.

Outpatient Diagnostic Services. As used in the bill, this would be those services which are furnished to an individual as an outpatient by a hospital, or by others under arrangements with them made by the hospital, which are customarily furnished by the hospital to outpatients for the purpose of diagnostic study.

SUMMARY

The Administration bill differs from the Anderson-Javits bill (S. 3565) defeated last year in the Senate by providing an election for different types of hospitalization benefits, postponing until 1965 start of the program, and deleting the Javits "option" to use private insurance.

End



Board of Medical Examiners

ROCHESTER, MINNESOTA SALESMAN SENTENCED FOR ABORTION

Re: State of Minnesota -vs- Carl Drugge

On May 10th, 1963 Carl Drugge, 28, Mantorville, Minnesota, was sentenced for the crime of abortion by the Hon. Roy C. Nelsen, Judge of the District Court at Hastings, Minnesota to a term of not to exceed four years in the State Reformatory for Men at St. Cloud, the execution of the sentence being stayed for the same period of time, however, and the defendant placed on probation. Drugge, who lives in Mantorville and is employed as a sewing machine salesman for a Rochester company, had pleaded guilty before Judge Nelsen on October 29, 1962 to the abortion charge. The Court at that time referred the case to the Department of Corrections of the State of Minnesota for a pre-sentence investigation.

The defendant Drugge had been charged with the crime of abortion in April 1962 after a 20-year-old Minneapolis woman, who was hospitalized in Minneapolis General Hospital, gave a signed statement to the authorities in which she related the facts concerning a criminal abortion which had been performed upon her earlier at a motel in Dakota County, Minnesota. According to her statement, she became pregnant by a man from Rochester who made arrangements through Drugge for her to be aborted. Pursuant to those arrangements she met the defendant Drugge in the lobby of a Minneapolis hotel and he then drove her to a St. Paul bar where he located the man who subsequently performed the abortion by means of inserting a catheter.

When Drugge was questioned by Judge Nelsen on October 29, 1962 at the time the defendant entered his guilty plea, he told the Court that his acquaintance with the abortionist was limited to seeing him in the bar in St. Paul occasionally and hearing him state that he did abortions. The defendant also stated that he had gone back to the bar several times after the abortion but that he had been unsuccessful in locating the abortionist for the authorities. When questioned by Judge Nelsen concerning the fee that was paid, Drugge testified that he paid $200 in currency to the abortionist and kept $25 for his own expenses, the money having been furnished by the Rochester man for whom the abortion was arranged. The latter was also charged with the crime of abortion but he has not yet been sentenced by the Court.

MINNEAPOLIS ABORTIONIST GIVEN TWO-YEAR PROBATIONARY SENTENCE

Re: State of Minnesota -vs- Arlene H. Carter

On May 3rd, 1963 Arlene H. Carter, 31, 1730 Oliver Avenue N., Minneapolis was sentenced for the crime of abortion by the Hon. Earl J. Lyons, Judge of the District Court of Hennepin County, to a term of two years in the State Reformatory for Women at Shakopee, Minnesota, the execution of the sentence being stayed for two years, however, and the defendant placed on probation for the same period of time. Mrs. Carter had entered a plea of guilty to the charge before Judge Lyons on April 5th.

The defendant was arrested when it was learned that a 19-year-old Minneapolis department store employee had been hospitalized on March 17, 1963 with a temperature of 106 degrees after submitting to an abortion. The patient said in a signed statement that she had been aborted by the defendant two years previously for the sum of $75.00 and therefore when she again became pregnant she contacted Mrs. Carter on February 21st, 1963. Pursuant to arrangements made at this time and in subsequent telephone calls the woman came to Mrs. Carter's home on the evening of March 15th, 1963. After the defendant had been paid the sum of $75.00 in cash she inserted a catheter. Mrs. Carter then instructed the woman to take laxatives, drink hot liquids and to call a doctor if anything happened.

On March 17th when the woman's temperature continued to rise her roommate called a Minneapolis physician who directed her to take the patient to the hospital at once. Upon the patient's arrival at the hospital it was determined that she had not expelled the fetus. The defendant, who has no medical training whatsoever, holds no license to practice any form of healing in the State of Minnesota.

Minnesota State Board of Medical Examiners
J. P. Medelman, M. D., Secy.



Red, white, and blue nest egg

If you're like most Americans, you probably intend to use your Savings Bonds as a down payment on a house, to help send a child to college, or otherwise upgrade your standard of living.

You don't need to feel one whit less patriotic because of this.

The fact that you and tens of millions of other American family groups and individuals buy and hold U.S. Savings Bonds helps Uncle Sam manage his financial affairs better and puts him in a position to be a stronger voice and a stronger power in the free world.

And the fact that you and these other millions of American family groups and individuals have accumulated the savings you have—45 billions in E and H Savings Bonds alone—is one of the reasons why Americans are financially strong and reliant. And their individual strengths are the strength of the nation.

When the Communists make one of their favorite statements—that they're going to "bury us" economically—your savings and your support of your country with U.S. Savings Bonds are mighty powerful answers.

Quick facts about U. S. Savings Bonds

- You get $4 for every $3 at maturity
- You can get your money anytime
- Your Bonds are replaced free if lost, destroyed, or stolen

Help yourself while you help your country

BUY U.S. SAVINGS BONDS

This advertising is donated by The Advertising Council and this magazine.

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The Blue Shield

Doctors' Assistants Meetings

Since its organization in 1947, Blue Shield has recognized the importance of the doctors' "girl Friday" in the handling of Blue Shield affairs. We recognize her to be, in many cases, the Blue Shield expert of the office. For this reason, it is important that a clear line of communication be maintained between the Blue Shield organization and the doctors' assistants as individuals and as a group.

With this in mind, Blue Shield has conducted doctors' assistants meetings in Albert Lea, St. Cloud, Mankato, Duluth and Moorhead. Plans are being made to conduct meetings in several other cities including Minneapolis and St. Paul. The purpose of these meetings is to relate contract provisions, underwriting regulations, discuss service benefits and the income provision of the contracts, and any and all items which will be of value to the doctor's secretary in her work with Blue Shield patients.

The meetings have consisted of a presentation by a Professional Relations representative followed by the Director of the Claims Department who enters into a detailed discussion of specific matters. The longest portion and perhaps the most important portion of the conference has been the question and answer period. We encourage questions and suggest the girls come to the meeting prepared to ask them.

The following list of questions and answers have been among the most popular in the meetings held to date:

Question: Do all people have the M-Series?
Answer: Blue Shield is attempting to convert its subscribers to the M-Series by persuasion as quickly as possible. The switch is not compulsory but since the benefits are greater, we feel that it is in the subscriber's best interest that he change to the M-Series. At the present time, approximately 7% of the Blue Shield subscribers are covered under the M-Series.

Question: What's different about the M-Series?
Answer: For the first time since Blue Shield of Minnesota was organized, a fee schedule is being used which is developed from a relative value study. Each medical or surgical service is rated in accordance with the time required, the complexity and the risk of the condition involved. The income levels at which a subscriber is entitled to full service are increased to $4200 for the Family and $3000 for the Single subscriber under M-Series 42 — to $6000 for the Family and $4200 for the Single subscriber under M-Series 60 — and to $7500 for the Family and $5200 for the Single subscriber under M-Series 75. In addition to the increased income limits, benefits to doctors are increased commensurately.

Question: Why don't identification cards show the patient's coverage?
Answer: It's surprising how often this question is asked when the identification card *does* show the type of coverage or the plan carried. It is suspected that the patient often shows a receipt, which of course does not show the coverage, rather than identification card.

Question: When do you pay for laboratory and x-ray?
Answer: When included in the contract, laboratory and x-ray are eligible for benefits whenever they are necessary and related to the diagnosis or treatment of an illness or an injury.

Question: Do you notify subscribers when claims are paid or rejected?
Answer: When a claim is paid, a copy of the original medical service report is mailed to the patient as his notice of the action taken. When a claim is rejected, a special mailing is sent the patient stating the reason for the rejection.

Question: Who is responsible to get information regarding the income of the patient?

Continued



For comprehensive control of the whole pain complex... helps the whole patient

Like a triad, the action of Trancogesic is direct and simple as 1,2,3. Its tranquilaxant component — chlormezanone — 1. reduces emotional reaction to pain . . . 2. decreases skeletal muscle spasm . . . and 3. its aspirin component dims the patient's perception of pain. Thus, Trancogesic controls the *whole* pain complex, helps the *whole* patient — *with unsurpassed tolerance.*

Each tablet of Trancogesic contains 100 mg. of chlormezanone and 300 mg. (5 grains) of aspirin. The usual adult dosage is 2 tablets of Trancogesic three or four times daily; the dosage suggested for children from 5 to 12 years is 1 tablet three or four times daily. Reactions to Trancogesic have been minor — gastric distress, and an occasional weakness, sedation or dizziness. Ordinarily, these may be reversed by a reduction in dosage or temporary withdrawal of the drug. Trancogesic is contraindicated in persons known or suspected to have an idiosyncrasy to acetylsalicylic acid. WINTHROP LABORATORIES, NEW YORK 18, N. Y.

TRANCOGESIC* Winthrop

CHLORMEZANONE with ASPIRIN

*TRADEMARK 100 MG. 300 MG. 1778M

Answer: The contract states that it is the responsibility of the subscriber to inform the doctor of his income status and to provide whatever information the doctor deems necessary to verify the information submitted. Until this is done, the participating physician may make an additional charge.

Question: Why is the doctor's charge necessary on the medical service report?
Answer: The contract states that Blue Shield will pay in accordance with the fee schedule up to but not to exceed the doctor's charge.

Question: Do you pay in Workmen's Compensation cases?
Answer: No!

Question: What is the volume of claims processed in your office and how many employees do you have?
Answer: At present, the monthly average of medical service reports processed is approximately 32,000. Employees total 160.

These are only a small sample of the questions which have been asked of Blue Shield representatives during previous assistant meetings. We feel that these meetings should be held in a selected community no less than once each year and that as the meetings continue, their value will increase.

SCROFULA

The King's Evil

"The King touches thee and God heals thee" were the words conventionally uttered by the English king, Edward the Confessor, over each scrofulitic who appeared before him. This pronouncement was ingeniously contrived, since the King thereby made it clear that he was only God's instrument, not His agent; therefore if the patient failed to recover, the failure was either God's for withholding cure or the patient's for lack of faith. The King couldn't lose!

This King's Touch was considered hereditary among the Kings of France and England: one of the divine rights of kings, extending over many centuries.

Charles II is said to have "touched" 92,107 sufferers. Paradoxically this superstitious practice actually advanced the study of scrofula, as it gave the court doctor who was always in attendance an opportunity to observe the disease and to write it, even though it was not within his province to make suggestions or to treat it.

The King's physician was always required to be present, mainly in order to weed out "gold-seekers:" those who didn't have scrofula but pretended to have it in order to collect the gold coin which the King presented to each suppliant to hang around his neck.

During Elizabeth's reign so many scrofulitics appeared that the denomination of the coin had to be reduced; the exorbitant sum of $50,000 was being distributed annually.

Scrofula reached its peak during the reign of Charles II, who is estimated to have made 100,000 "touchings;" there were more fatalities from the disease during this period than at any other in English history. At one session of "touchings" so many afflicted surged en masse toward the King that several were trampled to death.

When William III "touched," he said: "May God give you better health and more sense": a blunt statement not without cynical undertones. Again the King couldn't lose!

The practice of "touching" ended with Queen Ann's reign.

Among scrofulitics of eminence was the author, Samuel Johnson, who his biographers tell us, suffered all his life from scrofula, notwithstanding the fact that he had been "touched" for the disease at the tender age of four.

"O ye of little faith!"*

*Luke 12:28



Get your low-back patient back to work in days instead of weeks

You can expect rapid results from 'Soma' (carisoprodol)—because this unique drug breaks up both the spasm and pain of low-back syndrome at the same time.

Your patients will usually begin to feel better within a few hours. And as Kestler demonstrated in a controlled study of 212 consecutive patients with low-back problems: the average time for full recovery was only 11.5 days with 'Soma' (carisoprodol), 41 days without it. (J.A.M.A., April, 1960.)

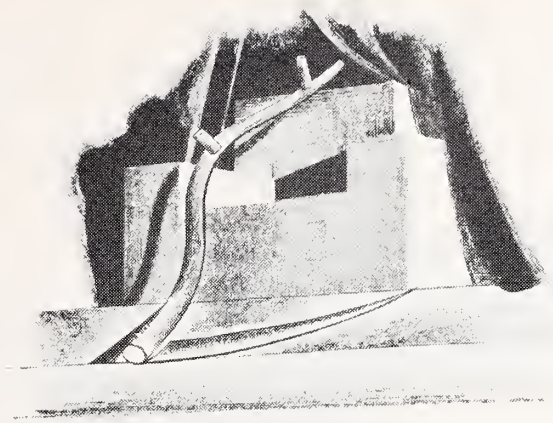
Carisoprodol seldom produces side effects. Occasional drowsiness may occur, usually at higher than recommended dosage. Individual reactions may occur rarely.

USUAL DOSAGE: ONE 350 MG. TABLET Q.I.D.

The muscle relaxant with an independent pain-relieving action

Soma®
carisoprodol

Wallace Laboratories
Cranbury, New Jersey



In Memoriam

HENRY L. ULRICH

Dr. Henry L. Ulrich, 87, former University of Minnesota medical professor and Minneapolis physician, died June 9. He was born at Newark, New Jersey and obtained his medical degree from John Hopkins University.

A founder of the Tuberculosis and Health Association of Hennepin County, Dr. Ulrich also received in 1953 the St. Barnabas Bowl award given annually to an outstanding doctor in Hennepin County. He was chief of the department of Medicine at Minneapolis General Hospital from 1917-1927, and a past president of the Hennepin County Medical Society, Minnesota Pathologic Society, Minnesota Academy of Medicine and the Minnesota Society of Internal Medicine. Dr. Ulrich served for many years on the editing and publishing committee of MINNESOTA MEDICINE and the Board of Editors. He was also a 50 Club and Life member of the Minnesota State Medical Association and American Medical Association.

He is survived by his wife and two daughters.

WALTER A. FANSLER

Dr. Walter A. Fansler, 74, founder of the University of Minnesota Medical School's proctology department, died May 27. He was born at Prairie Hill, Missouri and received his medical degree from the John Hopkins Medical School.

A former president of the American Proctological Society, Dr. Fansler was also a member and former president of the American Board of Colon and Rectal Surgeons. He was a member of the board of governors of the American College of Surgeons and was named "Man of the Year" in 1957 by Phi Beta Pi. Dr. Fansler was a member of the advisory board of the American Cancer Society, member of the Hennepin County Medical Society, Minnesota State Medical Association and American Medical Association.

He is survived by his wife, a daughter and a son.

HAROLD D. NAGEL

Dr. Harold D. Nagel, 65, founder of the Waconia hospital, died June 4. He was born at New Ulm and received his degree in medicine from the University of Minnesota.

He was a member of the Scott-Carver Medical Society, Minnesota State Medical Association and the American Medical Association.

He is survived by his wife.

EDWARD P. BURCH

Dr. Edward Parris Burch, 57, St. Paul eye surgeon, died suddenly June 12th of a heart attack. A former chief of staff at Miller hospital, Dr. Burch practiced in the Lowry Medical Arts Building.

He was born in St. Paul and received his medical degree from the John Hopkins university. He was a member of the Minnesota Club, Somerset Country Club, Ramsey County Medical Society, Minnesota State Medical Association and American Medical Association.

He is survived by his wife.

ANTON G. SANDERSON

Dr. A. G. Sanderson, 80, Ashby physician, died May 14. He was born in Minnesota and received his degree in medicine from Loyola Medical School in Chicago.

A former mayor and member of the City Council of Granite Falls, Dr. Sanderson was a charter member of the Kiwanis Club, president of the Riverside Sanitorium board, member of the Ashby American Legion, Tau Alpha Epsilon fraternity and joined the state tuberculosis program in 1942. He was a 50 Club and Life member of the Upper Mississippi Medical Society and Minnesota State Medical Association and a member of the American Medical Association.

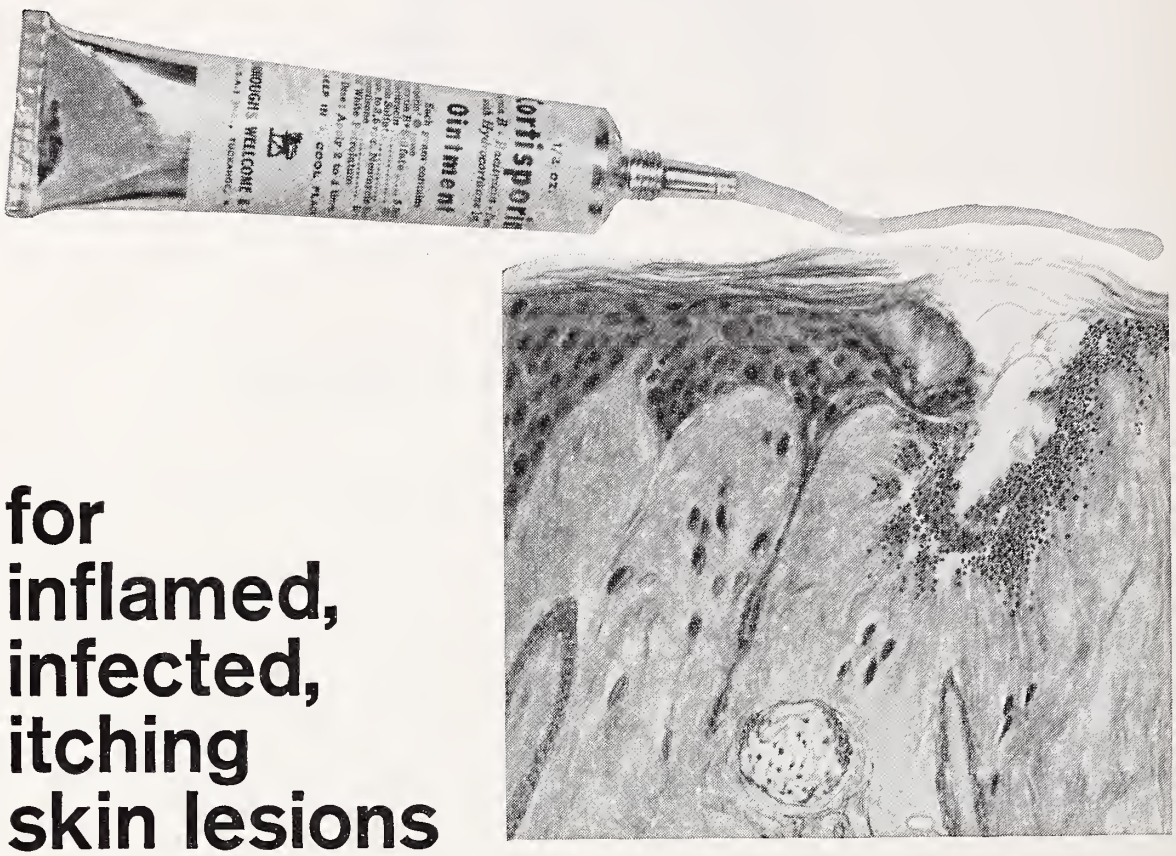
He is survived by his wife, one daughter and two sons, one of whom is Dr. David Sanderson of Fergus Falls.

EGBERT J. BORGESON

Dr. Egbert J. Borgeson, 69, former University of Minnesota Medical School faculty member and staff doctor at the Swedish and St. Andrew's hospitals in Minneapolis, died May 27.

Born in St. Paul, Dr. Borgeson received his degree in medicine from the University of Minnesota. He was a member of the Minnesota and American Academies of Ophthalmology and Otolaryngology, a fellow of the American College of Surgeons, member of the Hennepin County Medical Society, Minnesota State Medical Association and American Medical Association.

He is survived by his wife.



for inflamed, infected, itching skin lesions

anti-inflammatory / bactericidal / antipruritic

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Caution: As with other antibiotic products, prolonged use may result in overgrowth of nonsusceptible organisms, including fungi. Appropriate measures should be taken if this occurs.

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Meetings And Announcements

JULY

Summer Camp for Diabetic Children, July 14-August 4, Holiday Home, Lake Geneva, Wisconsin. Contact: Diabetes Association; 620 North Michigan; Chicago.

Fifth International Conference on Medical Electronics, July 22-26. Liege, Belgium. Contact: F. Bostem, M.D.; 23 Boulevard Frere Orban; Liege, Belgium.

AUGUST

AMA Public Health and Medical Course on Chemical and Biological Defense given August 19-24 at the U. S. Army Chemical Corps School, Fort McClellan, Alabama. Contact: AMA-Chicago.

American Academy of Physical Medicine and Rehabilitation Annual Meeting, August 26, at the Sheraton-Dallas Hotel, Dallas, Texas. Contact: Academy, 30 No. Michigan Ave., Chicago.

University of Colorado Postgraduate Course on Pediatrics August 5-9 and Medical Audiology Workshop August 19-23, Denver, Colorado. Contact: University.

American Academy of Physical Medicine and Rehabilitation Annual Meeting, August 26, at the Sheraton-Dallas Hotel, Dallas, Texas. Contact: Academy, 30 No. Michigan Ave., Chicago.

University of Colorado Postgraduate Course on Pediatrics August 5-9 and Medical Audiology Workshop August 19-23, Denver, Colorado. Contact: University.

SEPTEMBER

AMA Occupational Health Congress, September 25-26, Jack Tar Hotel, San Francisco. Contact: AMA-Chicago.

University of Illinois College of Medicine Department of Otolaryngology postgraduate course in Laryngology and Bronchoesophagology, September 16-28. Contact: University, 1853 West Polk Street, Chicago.

Annual Meeting of the Southern Minnesota Medical Association, September 9th, Rochester, Minnesota. Contact: Dr. John Eustermann at the Mankato Clinic, Mankato.

A nine month tutorial program in Cardiology, September 15, 1963 to June 15, 1964, will be offered by Institute for Cardio-Pulmonary Diseases, Scripps Clinic and Research Foundation, LaJolla, California. Write: Secretary, Scripps Clinic, La Jolla, California.

ANNOUNCEMENTS

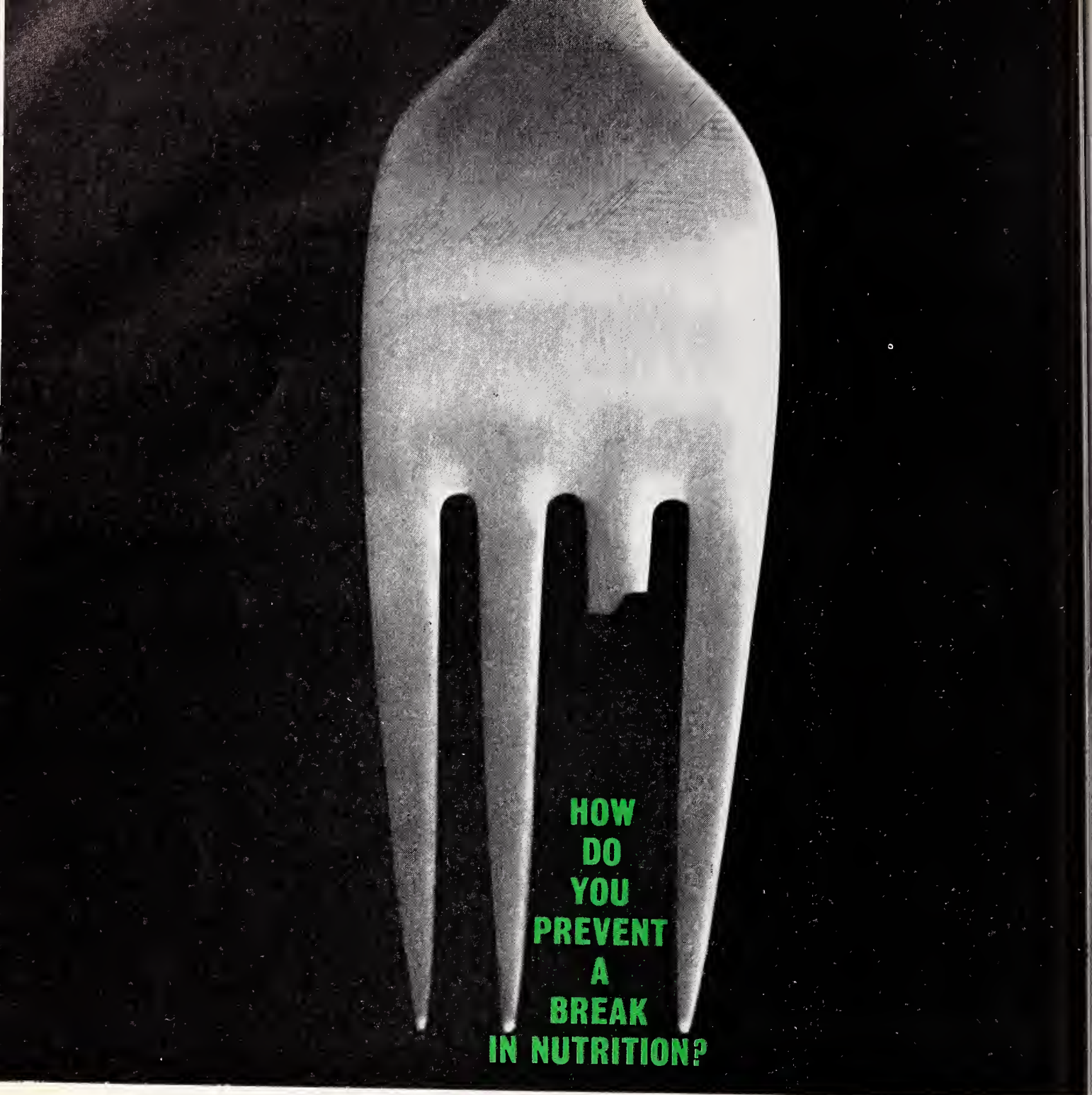
University of Minnesota postgraduate program for 1963 will be on "Failure to Thrive." Center for Continuation Study at the University of Minnesota, September 30 and October 1-2. Write: Dr. W. Albert Sullivan, Box 282, University of Minnesota Hospitals.

* * *

National Medical Foundation for Eye Care Third Annual Helmholtz Memorial Award for the author of finest article or essay on eye care published in the period August 31, 1962 to August 31, 1963. Entries must be submitted to office of the Foundation not later than September 30, 1963. Address: 250 West 57th St., New York 19, N. Y.

We are deceived by an appearance of right.—Horace

I hate definitions.—Disraeli



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Physician's Diary

Dr. E. E. Noval of New Prague recently met the President and the President was told that Dr. Novak was "One of Minnesota's outstanding citizens" having practiced medicine for 68 years and was 90 years "young."

* * *

Dr. Joseph H. Pratt, Mayo Clinic, presented a paper to the Fourth Mexican Congress of Obstetrics and Gynecology in Mexico City in June. His paper was "A Discussion of Some of the Iatrogenic Complications of Pelvic Surgery for Nonmalignant Lesions."

* * *

Doctors Wilbur H. Bittick, Anatol Lysyl and **Peter Pleotis** of Minneapolis, **Doctors George D. Malkasian** and **Werner Kaese** of Rochester, and **Dr. Charles J. McCarthy** of St. Paul were recently examined and certified by the American Board of Obstetrics and Gynecology.

* * *

New Locations . . . Dr. R. L. Engwall of the Tyler Clinic has moved to Minneapolis to continue his school . . . **Dr. Robert D. Letson** of Glenwood will specialize in ophthalmology at the University of Minnesota . . . **Dr. Warren L. Kleinsasser** of St. Paul is joining the medical firm of **Doctors Field, Hunter** and **Moller** in Farmington . . . **Dr. Vicent Ryding** is leaving Mountain Lake to accept a position at the University of Iowa . . . **Dr. Gary B. Glomstad** and **Dr. Albert Roth** of St. Paul have opened up a practice in Deer River . . . **Dr. Harold Broman** who has been serving in the rank of captain as a medical officer in Duluth will return to private practice in North St. Paul . . . **Dr. Tom Hegstad** joins **Dr. Homer** and **Harold Basinger** in Windom.

* * *

Dr. A. J. Barnett, chief of medicine at Veterans Administration Hospital in St. Cloud, will open up a private practice . . . **Dr. William H. Inglis** is leaving Redwood Falls to begin a residency at Milwaukee County Hospital.

At the Spring Meeting of the Minnesota Radiological Society the following officers were elected: **Dr. John R. Hodgson** of Rochester, president; **Dr. Dan L. Fink** of St. Paul, Vice President; and **Dr. Frank J. Anderson** of Minneapolis, Secretary-Treasurer.

* * *

Dr. Wesley W. Spink, University of Minnesota Professor of medicine was made an honorary fellow of The Royal Australian College of Physicians in Sydney, Australia.

* * *

Dr. Ralph D. Ellefson of the Mayo Clinic was recently appointed to the staff of the clinic as a member of the section of biochemistry.

* * *

Dr. George B. Ewens was elected chief of staff of the Virginia Municipal Hospital recently. **Dr. Whitney Woodruff** was elected vice chief of staff and **Dr. C. J. Mock,** secretary.

* * *

Dr. Leo Herber of Thief River Falls was elected president of the newly founded chapter of the Minnesota Academy of General Practice. **Dr. Harold Thysell** of Crookston, was named vice president and **Dr. H. Paul Wendt** of Thief River Falls was elected secretary-treasurer.

* * *

Dr. Richard M. Hewitt, head of the Section of Publications of the Mayo Clinic, received an Alumni Achievement award from Wesleyan University, Middletown, Connecticut, recently.

* * *

Dr. Otto F. Ringle of Silver Bay received the coveted Minnesota Power & Light company's Free Enterprise Award during the recent 5th annual Jaycee awards banquet. Dr. Ringle was recently named Region 16 Outstanding Jaycee.



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Supplied: Bottles of 50 tablets.

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ST. PAUL General Practitioner needed to fill third position with two 39-year old A.A.G.P. members. Own beautiful, air-conditioned office building. Salary related to experience and early partnership desired. Write: Box 232, MINNESOTA MEDICINE, 496 Lowry Medical Arts Building, St. Paul.

WANTED — General Practitioner for medical center in growing Minneapolis suburb as partner, associate or assistant. Calll MIdway 8-8618 or TUxedo 8-5112, St. Paul or write to: Burnsville Medical Center, Savage, Minnesota.

PLAN for Psychiatric Residency for July, 1964? NIMH General Practitioner program: $12,000 yearly, partially tax free. Three-year approved, balanced didactic and clinical training. In Michigan's vacationland. Dr. Curtis W. Page, Training Director, Traverse City State Hospital, Traverse City, Michigan.

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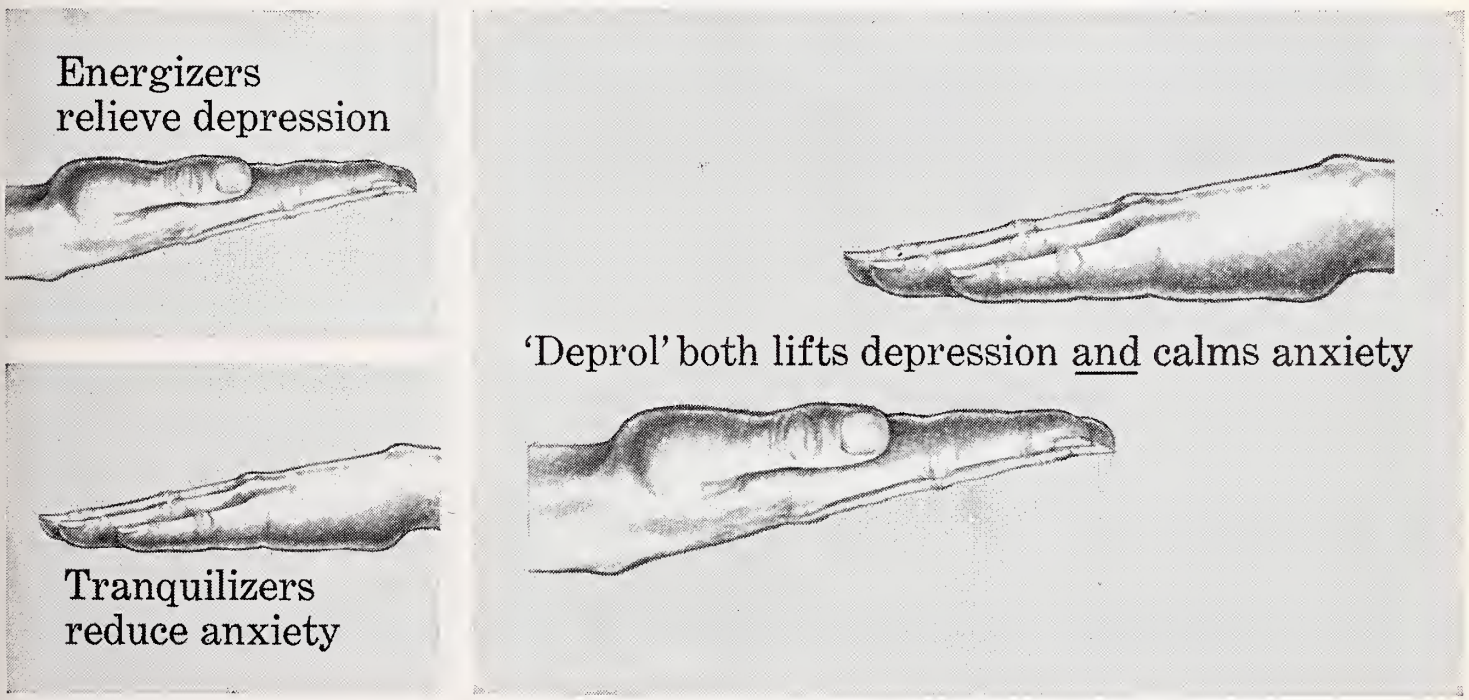
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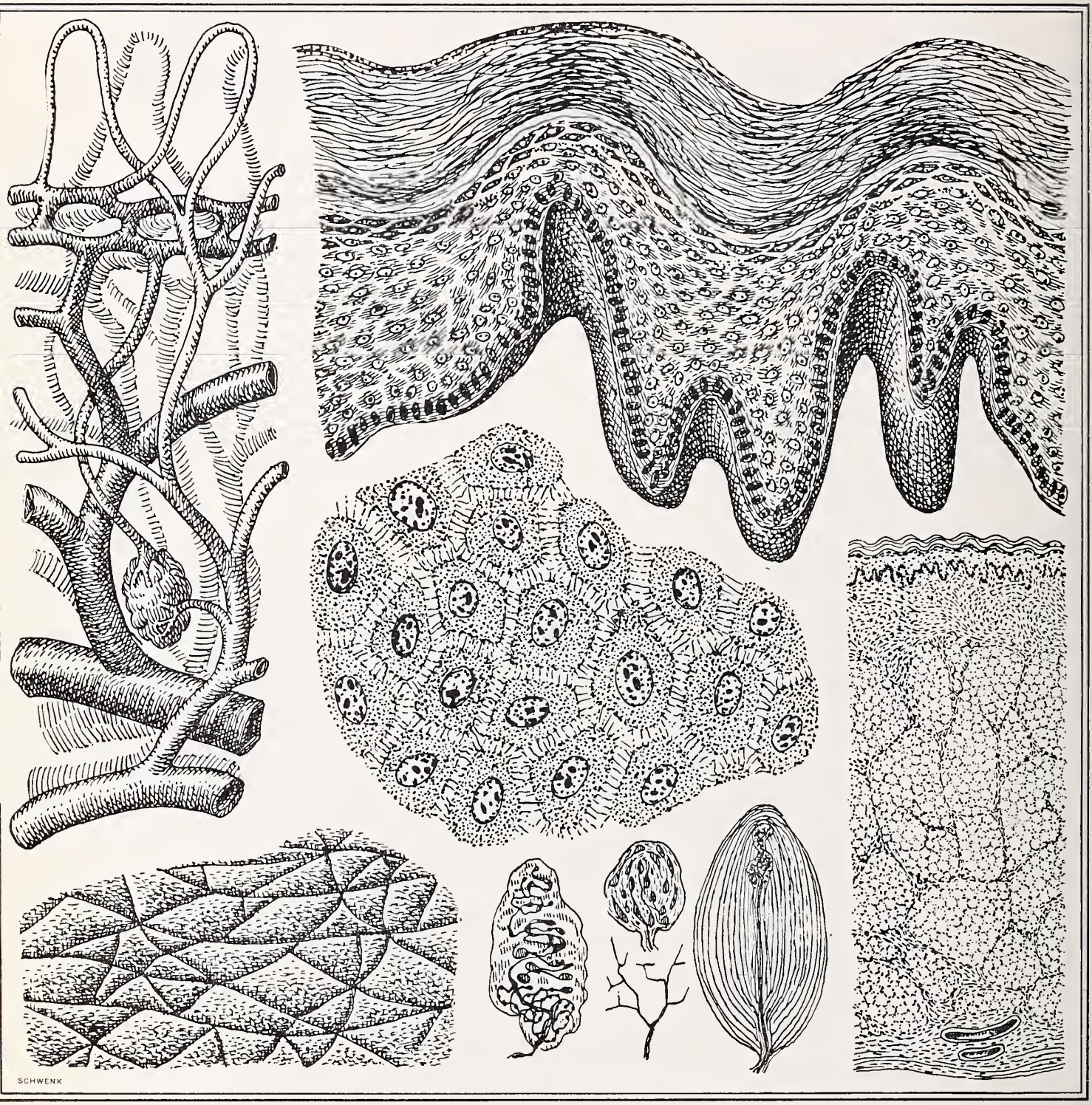
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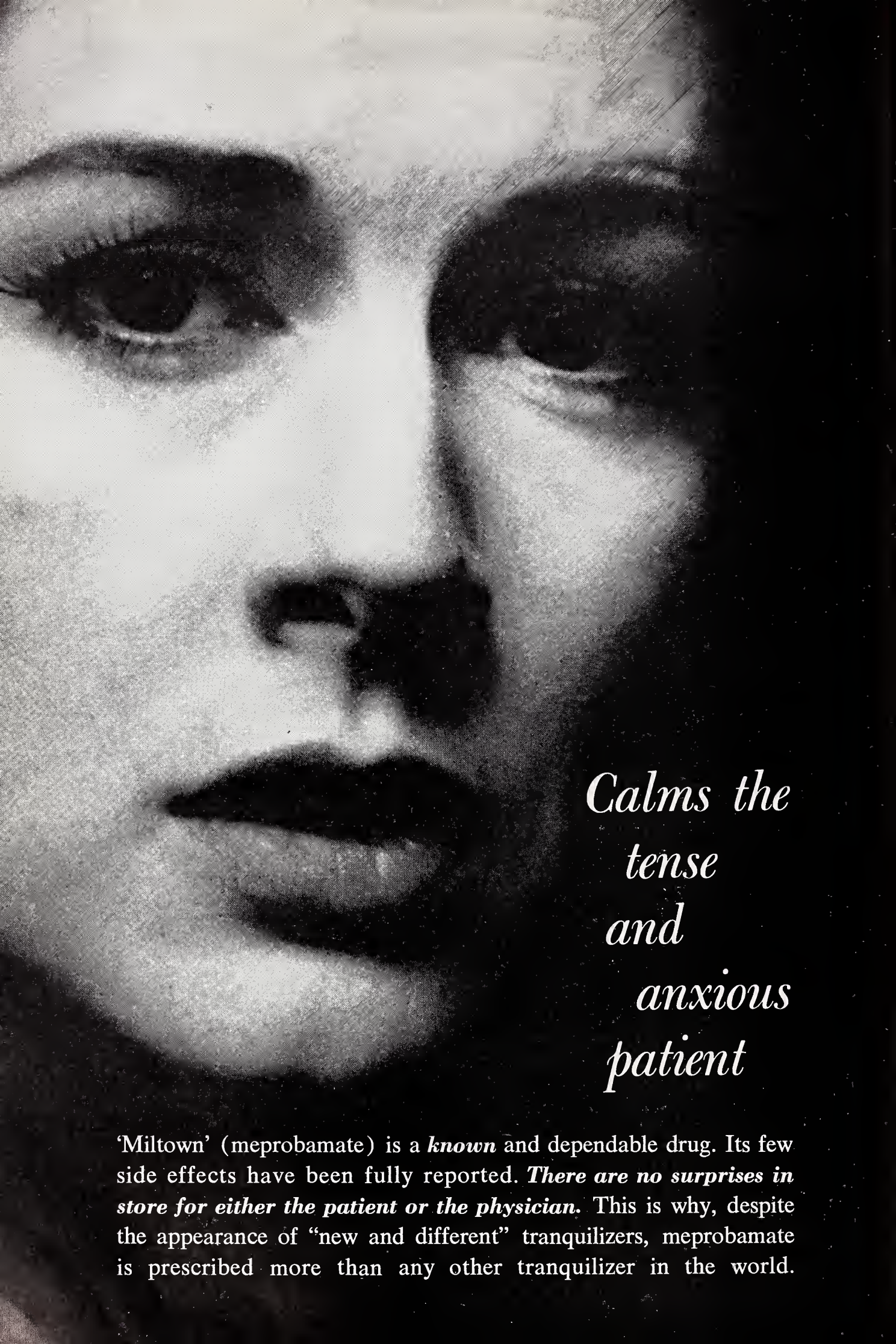
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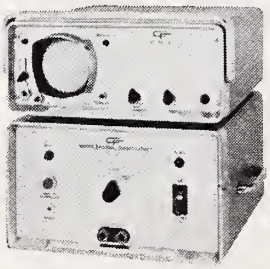
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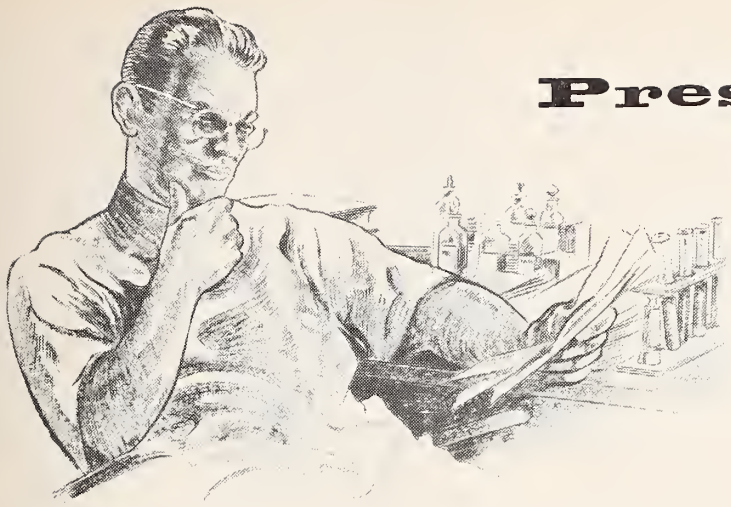
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President's Letter

The writer attended the annual meeting of the American Medical Association in Atlantic City, June 16-20, and had an opportunity to attend as a spectator the sessions of the House of Delegates and several of the reference committees.

As a detailed report of the actions taken by the House of Delegates will be published in the AMA News, only a few of the outstanding actions will be very briefly reported on this page.

The Board of Trustees was increased from eleven to fifteen members by the addition of three elected members and the inclusion of the immediate past President for a one year term. It was further voted that the term of office for elected board members will be three years with a maximum of three such terms for any individual.

The House determined that all section officers should be elected by the members of the section concerned.

A proposal providing that compensation of hospital house officers be paid in whole or in part from fees collected by the attending physicians or from fees collected from medical-surgical insurance coverage was defeated.

The House of Delegates' approval was given to the establishment and operation of a new Institute of Bio-Medical Research by the AMA Education and Research Foundation.

The establishment of an AMA Physician's Pension Plan under the provisions of the Self-Employed Individuals Retirement Act (Keogh Law) was approved. The Board of Trustees was instructed to make every effort to begin operation of the plan during 1963.

It was agreed that any definitive statement regarding the relationships of tobacco and disease would be deferred pending the availability of more information including whatever may come from the study of a committee appointed by the United States Public Health Service.

A new National Council for the accreditation of nursing homes jointly sponsored by the American Medical Association and the American Nursing Home Association was approved.

It was recommended that all members give strong support to the National Tuberculosis testing campaign proposed by the American School Health Association.

Outstanding addresses were given by Dr. George M. Fister, retiring President, at the opening session, and by Dr. Edward R. Annis in his inaugural address.

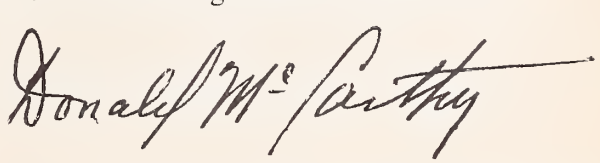
The Association's Distinguished Service Award for 1963 was presented to Dr. Lester R. Dragstedt, Research Professor of Surgery at the University of Florida School of Medicine, for his achievements in the fields of education, research and clinical surgery. John F. Enders, Ph.D. of Boston was the recipient of the AMA Scientific Achievement Award. The Joseph Goldberger Award in Clinical Nutrition was presented to Dr. John B. Youmans of New York City.

At the closing session Dr. Norman Welch of Boston, Speaker of the House since 1959, was named President-Elect by acclamation.

Dr. Donovan F. Ward of Dubuque, Iowa was elected to the position of Vice President.

Dr. L. O. Simenstad of Osceola, Wisconsin was elected to the Board of Trustees.

We in Minnesota can be justifiably proud of the nomination and election to the Judicial Council of Dr. Walter Judd of Minneapolis, former Member of Congress and 1961 recipient of the AMA Distinguished Service Award.



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Mucoepidermoid Tumors

• Originating • Outside • of • the • Major • Salivary • Glands

ARNOLD J. KREMEN, M. D.
STUART W. ARHELGER, M. D.
Minneapolis, Minnesota

The tumors described in this paper are rare. As a consequence their clinical behavior is not well known. These cases are valuable additions to the body of material from which the best clinical management can ultimately be developed.

It is the purpose of this article to report our experience with mucoepidermoid tumors occurring outside the major salivary glands and to present historical, pathological, and current therapeutic concepts concerning these interesting neoplasms.

Historical

Mucoepidermoid tumors of major salivary gland origin were defined as an entity in 1945 by Stewart, Foote and Becker,[12] who reported forty-five cases among patients at the Memorial Hospital in New York. Similar tumors under different names had been reported in 1921 by Schilling[9] and by Skorpil[10] in 1940. Skorpil described eight cases of his own and seventeen additional cases from the literature under the term "Schleimbildendes Epitheliom." In 1948, Linell[6] summarized the literature and added twelve additional cases, bringing the total to eighty-one. He chose to call these tumors "Mucus Secreting Adenocystic Epidermoid Carcinomas."

During the past ten years, mucoepidermoid tumors, although not common, have been diagnosed with increasing frequency in the major salivary glands. During the same period, tumors of identical histologic components have been found in various locations in the oral cavity, and the tumor has been recognized as an infrequent variant of bronchial adenomas.[2] The neoplasm has also been reported to occur in the anus,[2] the cervix uteri, and the appendages of the skin.

In Stewart's original paper, forty-five cases of mucoepidermoid tumors were reported among 700 salivary gland tumors: an incidence of six per cent. Among the forty-five cases, thirty-three per cent occurred in the oral cavity outside the

major salivary gland areas.[12] In a recent review of two hundred salivary gland tumors at the University of Minnesota, fourteen or seven per cent were of mucoepidermoid variety. Thirty-seven per cent of thirty-two cases of tumors of oral mucous glands reported by Smith, Broadbent and Zavaleta were of the mucoepidermoid type. Other reports[10] also suggest a proportionately higher incidence of mucoepidermoid as well as other malignant neoplasms in the extra-salivary gland tumors of seromucous origin. During the past ten years we have observed six cases of mucoepidermoid tumors occurring outside the major salivary glands and fourteen within.

Pathology

The pathology of mucoepidermoid tumors is similar regardless of primary location. Histologic classification into low-grade or semi-malignancy and high-grade malignancy has been proposed by Stewart, Foote and others.[12,6]

In the low-grade tumors, one sees multiple-cell types with mucin-secreting cells about mucin pools and cysts. All variants of epidermoid features from basal cells to epidermoid pearls may be seen. Over-all, however, the cells have a mature appearance and features of rapid proliferation are lacking.

In the more malignant type, there is a more uniform pattern of cell type with a preponderance of epithelial components approaching that of squamous-cell carcinoma. Mucus pools or cysts are rare or absent. The stroma is scanty.

These neoplasms are characterized by the simultaneous presence of mucin-secreting goblet cells and epidermoid cells along with a so-called intermediate cell which is neither mucus-producing nor epidermoid. Foote[3] states that the intermediate cell is probably capable of differentiation into mucus or epidermoid cells, explaining the pleomorphism of the tumor. Most investigators feel that the lesion originates from the ductal cells proximal to the acinar lobules, although some state that the tumor cells may be derivatives of the basal cells of the skin or mucous membrane. The natural history of these tumors is usually one of slow growth, tendency to local recurrence with inadequate treatment and occasional regional or distant metastases. However, a sharp diversion of these tumors into two definite groups, slow-growing and rapid-growing, can not be made regularly, as there are overlapping histologic features in both groups. In exceptional cases, tumors with the histologic features of so-called low-grade malignancy have produced metastases.

Mucoepidermoid tumors do not have a discrete capsule. They are locally invasive, and the incidence of local recurrence is high when inadequate local excision has been employed. For example, Rawson[8] reports eight low-grade malignant

TABLE I

Patient	Age at onset	Sex	Location	Lesion Size	Nodes	Ulceration	Duration Prior to Surgery	Definitive Operation	Present Status
1	50	M	Tongue	5x3 cms.	Neg.	None	8 yrs.	Partial glossectomy & neck dissec.	Living & well 5 yrs., 11 mos. after surgery
2	71	F	Tongue	3x2 cms.	Pos. Bilateral	None	3 mos.	Part. glossectomy plus bilat. neck dissection	Living & well 5 yrs., 6 mos. after surgery
3	40	F	Buccal mucous membrane	2x2 cms.	Neg.	Present	3 mos.	Wide excision en/bloc with neck dissect.	Living & well 5 yrs., 3 mos. after surgery
4	55	M	Palate & pharynx	4x4 cms.	(Clinic) Neg.	None	Unknown-found on routine phys. exam.	Resection of soft palate & portion of pharynx	Living & well 4 yrs., 11 mos. after surgery
5	20	F	Lung	3x3 cms.	Neg.	None	In excess of 2 yrs.	Pulmonary lobectomy	Living & well 7 yrs., 4 mos. after surgery
6	16	F	Palate and alveolar ridge	1x1 cm.	(Clinic) Neg.	None	3 mos.	Partial removal of alveolar ridge & palate (local excision)	Living & well 4 yrs., 8 mos. after surgery

epidermoid tumors treated by local excision with one hundred per cent recurrence. Eventual salvage was obtained by more radical excision. Linell[8] reports fifteen recurrences among twenty-five cases.

Data

Table 1 contains information concerning our experience with six patients with mucoepidermoid carcinomas of extra-salivary gland origin. All six of the patients have been treated surgically and are alive and well without evidence of recurrent tumor. Four patients are over five years and two are four years past surgical management.

Discussion

Because the natural history of these lesions is frequently one of a slow, protracted, insidious course, and because of the relative infrequency of the lesions outside the salivary glands, evaluation of results is confusing and inconclusive. However, the fact that all six patients are living and well from four to six years following surgical extirpation tends to confirm past reports of the efficacy of surgical management.

Reports of American and European literature monotonously document the failure of radiation therapy to permanently control this lesion. Efforts at simple or less than adequate surgical excision combined with radiation are equally ineffective and have only served to delay and complicate definitive excision.

Whereas in the parotid a surgeon may justifiably be reluctant to sacrifice the facial nerve to effect a wide excision for a lesion with a low-grade malignant potential, this need not be a consideration for most extraparotid lesions. Here, wide and adequate regional excision can be regularly planned and effected.

Regional lymphatic excision, when it can be done in continuity with the primary excision, would seem a wise and reasonable addition to the primary operation for all mucoepidermoid tumors. When, because of the location of the tumor, an incontinuity neck dissection cannot be done at the primary operation, it would seem advisable to do one after an interval of two to three weeks for the high-grade malignancies. On the other hand, for those tumors showing the histologic criteria of low-grade malignancy, neck dissection may be delayed until palpable evidence of cervical lymph node involvement becomes evident, when the procedure cannot be done as an incontinuity excision.

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Questioning is not the mode of conversation among gentlemen.—Samuel Johnson



Fig. 1. *a*. Bilateral enlargement o f the breasts due to gynecomastia in a teen-age boy. *b*. Breast tissue has been removed through incisions along the submammary fold, with retention of the areolae and nipples. The undersirable feature of this operation is the symmetric scars, which may embarrass the patient. This operation should be reserved for high enlargements of the breast that cannot be corrected through a periareolar incision.

Gynecomastia

JOHN B. ERICH, M.D.*
DONALD M. LEVY, M.D.**
Rochester, Minnesota

GYNECOMASTIA IS a relatively common condition which on occasion may be disturbing enough to justify surgical treatment. Enlargement of the male breast due to hypertrophy of the acinar tissues may be primary or physiologic in nature; it may be observed in association with a variety of pathologic conditions or it may accompany the administration of certain hormones. Consequently, it is evident that this disorder can be ascribed to many causes (table). So-called primary gynecomastia is the most common form, and in most cases of this type no etologic factors can be demonstrated. However, much scientific evidence suggests an alteration in endocrine function. The importance of estrogens in the production of gynecomastia has been shown repeatedly; estrogens when given therapeutically often result in proliferation of the ducts and stroma of the breasts. Androgens, such as testosterone, also produce enlargement of breast tissue.

Gynecomastia During Puberty

During puberty, males frequently develop enlargement of the breast on a physiologic basis in the form of a subareolar button of tissue, such areas of acinar hypertrophy being so common that they can be considered normal. Usually this type of hypertrophy regresses within two years.

*Section of Plastic Surgery, Mayo Clinic
**Fellow in Plastic Surgery, Mayo Foundation

Surgical Correction

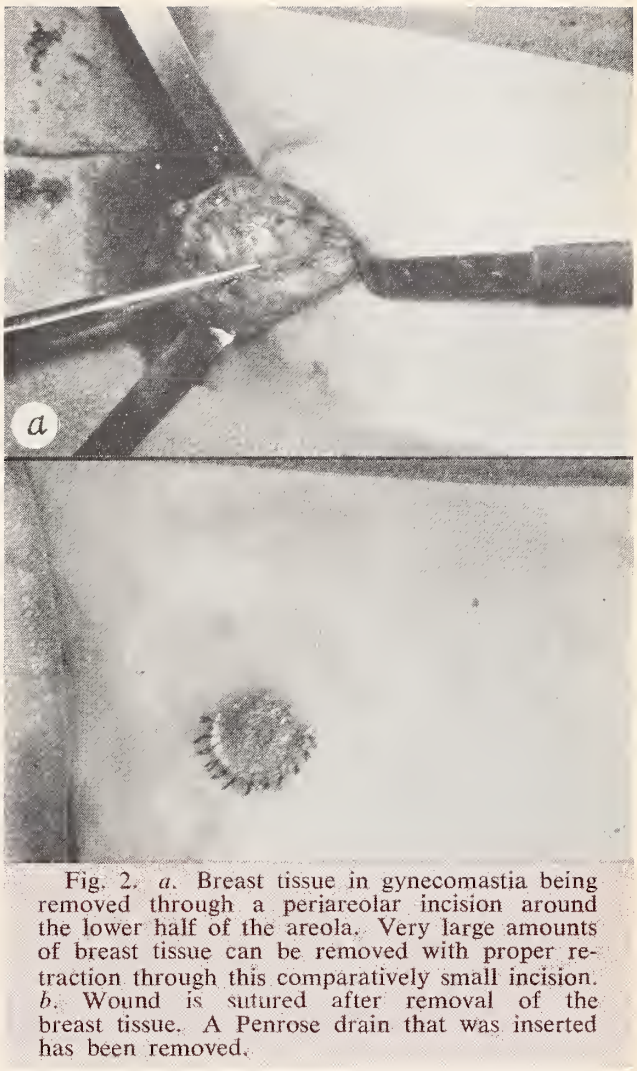


Fig. 2. *a*. Breast tissue in gynecomastia being removed through a periareolar incision around the lower half of the areola. Very large amounts of breast tissue can be removed with proper retraction through this comparatively small incision. *b*. Wound is sutured after removal of the breast tissue. A Penrose drain that was inserted has been removed.

Physicians as well as patients worry about gynecomastia. The author clarifies several important questions and outlines a reasonable and effective approach to this disturbing problem.

Secondary Gynecomastia

Many pathologic conditions secondarily produce gynecomastia. Among the most common is disease of the testes resulting in hypoplasia of the testicular elements and in hypogonadism; this includes atrophy of the testes due to orchitis, X ray, trauma, or cryptorchidism. Other diseases that occasionally cause gynecomastia are testicular neoplasms, hyperplasia of the adrenal cortex, pituitary tumors, hepatic disease, and lesions in the lungs.

Gynecomastia can occur at almost any age, but about one third of patients with this disorder are adolescents in their late teens. Several authors draw attention to a second peak in incidence occurring between the ages of 50 and 70.

Excluding pubertal enlargement of the breast, which is more frequently bilateral, gynecomastia is unilateral in most cases; in only 542 of 2157 cases reported in the literature was it bilateral. There is no explanation concerning the laterality of gynecomastia in so many instances.

Enlargement of the breasts in males due to gynecomastia is usually asymptomatic. Many patients, however, do complain of slight pain, tenderness, or irritation. Psychic embarrassment



Fig. 3. *a.* Bilateral enlargement of the breasts due to gynecomastia in a teen-age boy.

is often pronounced in teen-age boys and young adults because of ridicule by their associates; such individuals usually refrain from entering into athletic or other activities that require removal of their clothing.

The appearance of significant degrees of gynecomastia should prompt a thorough physical investigation. There is no medical treatment for gynecomastia itself, and regression of the acinar tissue is not to be anticipated after adolescence. Therefore, surgical excision offers the only form of treatment for those patients with breasts large enough to produce a psychologic handicap. In addition to esthetic reasons, indications for surgical treatment are pain or tenderness in the breasts that interferes with normal activity, and fear by the patient, despite reassurance, that malignant disease may develop.

Surgical Treatment

The primary purpose of this presentation is to discuss the surgical treatment of gynecomastia, especially with reference to the cosmetic aspects.

Various methods of removing the enlarged mammary glands in gynecomastia have been proposed. In younger individuals, simple mastectomy seems to be a poor solution to the problem, since the resultant scars are often as disturbing to the patient as are the enlarged breasts. Removal of the breast tissue through an incision along the submammary fold with preservation of the nipple and areola is cosmetically more acceptable, but the resultant scar is frequently conspicuous (fig. 1). Probably the best operation in most cases of gynecomastia was first described by Webster[1] and involves removal of the breast tissue through a periareolar incision. We believe that Webster's technic is the one of choice unless the mammary enlargement is so pronounced that it would be technically impossible to remove the breast tissue through a periareolar incision.

Intra-areolar Incision

We prefer to utilize a semicircular incision around the lower half of the areola (fig. 2), located just inside the junction of the areola with the adjacent skin; Webster refers to it as an intra-areolar incision. The advantage of such an incision lies in the fact that, when sutured, the resultant scar becomes almost invisible after a few weeks or months (fig. 3, 4 and 5). By working through this incision with dissecting scissors, the skin over the mammary gland is carefully undermined, and the ducts extending into the nipple are severed so that the nipple and areola

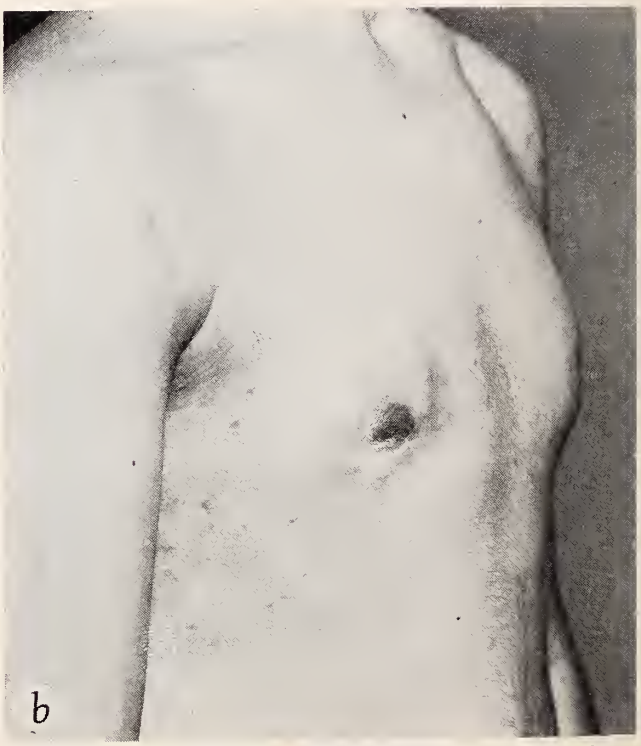


Fig. 3. *b.* Breast tissue has been removed through a periareolar incision around the lower half of each areola.

are completely detached from the underlying tissues. It is advisable to leave from five to 10 mm. of tissue attached to the undersurface of the areola and nipple, thereby improving the ultimate cosmetic effect of the operative procedure. If the nipple and areola are thinned out too much, these structures are likely to become contracted and distorted by scar tissue. Then by using three small ribbon retractors dissection of the breast tissue can be started from the outer edge (fig. 2*a*).

Periareolar Incision

In larger breasts, some surgeons prefer to divide the gland into quarters, which facilitates removal of the mammary tissue through the small periareolar incision; but meticulous hemostasis is of the utmost importance when working through a small incision. Therefore, we carry out the dissection slowly, clamping and tying off every vessel from which there is active bleeding, and electrocoagulating every tiny area from which oozing of blood occurs. With proper retraction and care in hemostasis, the breast can be gradually detached from the surrounding tissues and removed without difficulty. In closing

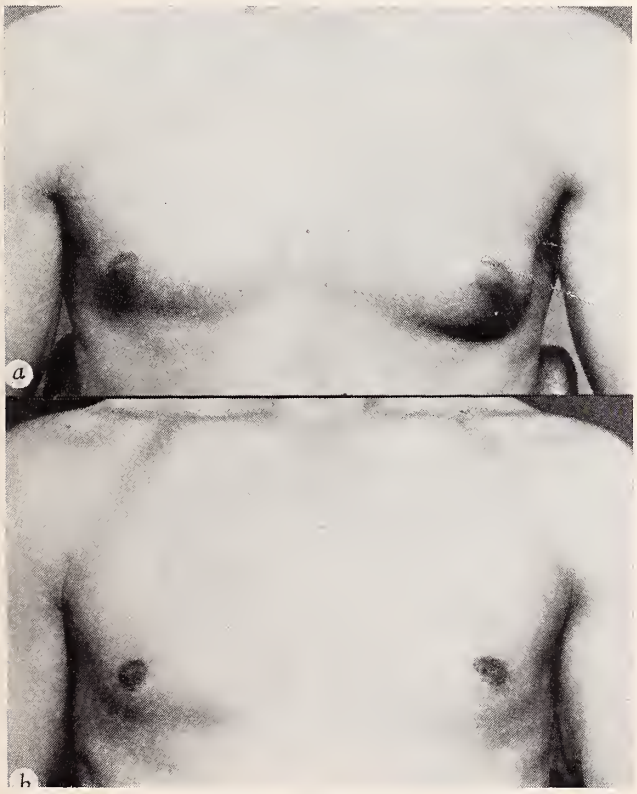


Fig. 4. *a*. Bilateral enlargement of the breast due to gynecomastia in a teen-age boy. *b*. Breast tissue has been removed through a perioreolar incision around the lower half of each areola.

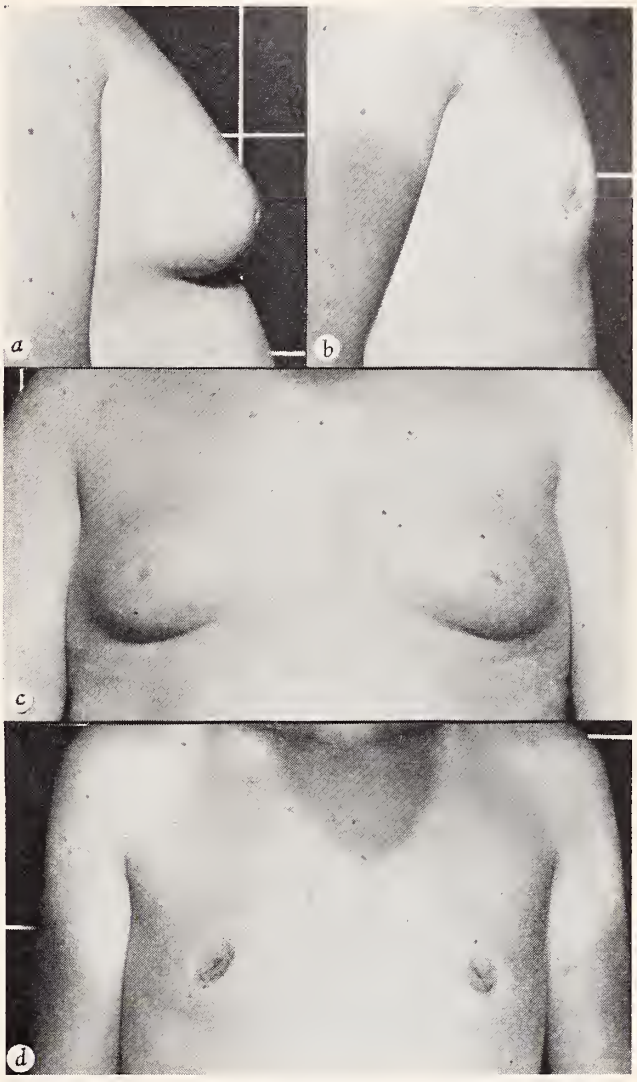


Fig. 5. *a*. Pronounced hypertrophy of the breasts due to gynecomastia in a teen-age boy. *b*. Corrected by removal of the breast tissue through a perioreolar incision. This case illustrates the fact that even though the breast tissue is markedly enlarged, it still can be removed through a small periareolar incision. *c*. and *d*. Same patient, front views before and after operation.

the wound, we find it inadvisable to draw the subcutaneous fat together in an attempt to obliterate the space from which the breast was removed, as such subcutaneous sutures cause much distortion of the part and are better not employed. We have found that it is especially important to insert in the wound a small Penrose drain around which serum can escape. In these wounds, even though a pressure dressing is applied, serum always seems to accumulate; if a drain is not employed, serum collects to the extent that it must be withdrawn with a syringe, often on more than one occasion. The postoperative course of healing seems to be much more rapid if a drain is left in place for five or six

days. The skin wound is sutured with 6-0 silk (fig. 2*b*), and a pressure dressing is applied.

Submammary Fold Incision

If the patient has enormous breasts as shown in figure 6, it is useless and inadvisable to attempt to remove them through a periareolar incision. Better exposure for dissection and hemostasis can be accomplished through an elongated incision in the submammary fold; furthermore, less cicatricial distortion of the mammary area will ensue.

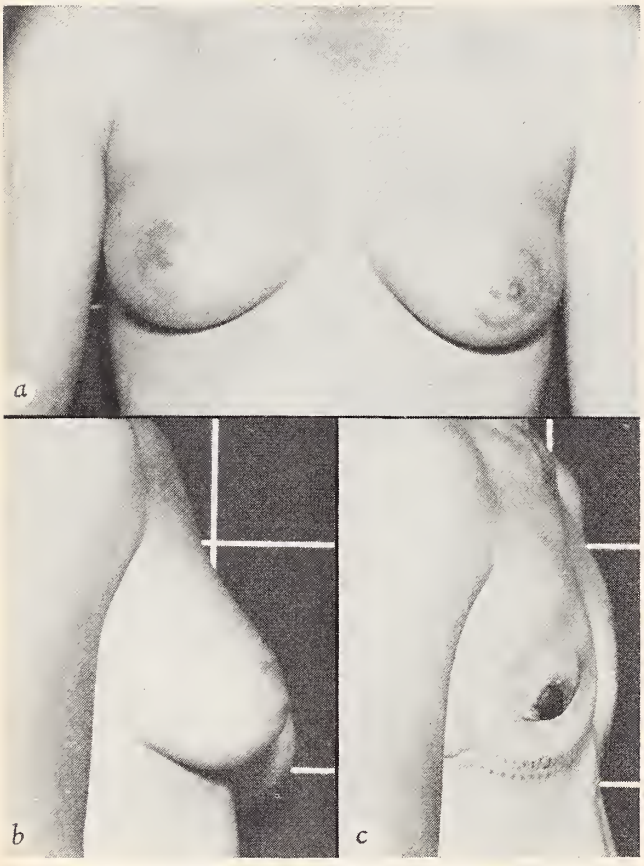


Fig. 6. Excessive enlargement of breasts due to gyecomastia in a teen-age boy. *a*. Front view. *b*. Side view. *c*. Breast tissue in this case was too large to be removed through a periareolar incision; consequently, a long incision in the submammary fold was employed. The fact that the photograph was taken only six days after operation accounts for the residual swelling, the discoloration around the nipple and the stitch marks.

Association of Gynecomastia With Malignancy

There have been sporadic reports of the development of malignant disease in a gynecomastic breast. In Gilbert's[2] series of 47 males with carcinoma of the breast, nine (19 per cent) had gynecomastia. Whether this is a valid observation or whether the "gynecomastia" was in actuality a malignant condition is not ascertainable. However, most authors, including Karsner[3], Word and Reed,[4] Cheatle and Cutler,[5] Lewison[6] and Williams,[7] believe that there is no association between gynecomastia and malignancy. In more than 2000 cases of gynecomastia reviewed from various reports, no malignancy was observed. A survey by Snyderman and Lizardo[8] of 1646 cases thought to represent gynecomastia disclosed two cases in which malignant lesions had been discovered on physical examination prior to operation and two other cases in which malignant lesions had been discovered on pathologic examination of the surgical specimen. When a

Table
Causes of Gynecomastia

I. A physiologic process that produces an alteration of hormonal balance.
  A. Neonatal gynecomastia
  B. Puberty
II. A pathologic process that produces excessive hormones or an alteration of hormones to which the acinar tissue is sensitive.
  A. Hypoplasia or atrophy of testicular elements
    1. Pubertal tubular failure
    2. Postpubertal tubular sclerosis
    3. Atrophy secondary to
      a. Orchitis
      b. Irradiation
      c. Trauma
      d. Cryptorchidism
    4. Replacement of testicular tissue by tumor or granuloma
      a. Varicocele, hydrocele, spermatocele
      b. Leprosy
      c. Tuberculosis
      d. Others
  B. Testicular tumors
    1. Interstitial cell tumor
    2. Chorioepithelioma
    3. Androblastoma
    4. Others
  C. Klinefelter syndrome
  D. Adrenal cortical hyperplasia or tumor
  E. Pituitary tumor
  F. Hepatic disease
  G. Starvation
  H. Thoracic diseases (rare)
    1. Bronchogenic carcinoma
    2. Thoracic chorioepithelioma
    3. Bronchiectasis
    4. Lung abscess
    5. Mediastinal lymphoblastoma
  I. Diseases of central nervous system (rare)
    1. Paraplegia
    2. Dystrophia myotonica
    3. Friedreich's ataxia
    4. Syringomyelia
  J. Secondary to drug therapy (rare)
    1. Isoniazid
    2. Digitalis
  K. Other diseases (rare)
    1. Hyperthyroidism
    2. Ulcerative colitis
    3. Rheumatic fever
    4. Glomerulonephritis
III. Direct hormonal administration.
  A. Estrogen
  B. Testosterone
  C. Desoxycorticosterone (rare)

malignant disease is found during routine mammoplasty of this type, the surgeon must be prepared to do a radical mastectomy as performed in the female.

Summary

Cosmetic operations for gynecomastia should be deferred until potentially dangerous causative processes have been considered. Malignant disease of the breast is not a hazard in gynecomastia and is therefore not a contraindication to conservative therapy. Indications for surgical treatment include (1) development of the breast sufficient to produce a psychologic handicap, (2) aesthetic reasons, (3) pain or tenderness that interferes with normal activity, and (4) fear by the patient, despite reassurance, that malignant disease may develop in the enlarged breasts. Of the various methods of surgical treatment, that involving use of an intra-areolar incision offers excellent results and is discussed in detail. Accurate hemostasis and the use of a small Penrose-type drain facilitate healing and minimize postoperative scarring. A detailed list of the causes of gynecomastia is presented.

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WHAT'S YOUR DIAGNOSIS?

A 29-year-old right-handed man was in excellent health until 4 weeks prior to hospitalization when stiff neck and occipital headache developed. These symptoms would be present for 2 to 3 hours, would subside, and would recur approximately 3 times a week. Two weeks later unsteadiness in walking developed with a tendency to fall to the right. One week prior to his hospitalization nausea and vomiting developed.

On his admission to the hospital, his temperature was 100.2° F., blood pressure 128/80 mm. of mercury, and pulse 72 and regular. No abnormality of the cranial nerves was found except for bilateral early papilledema. There was no nystagmus. He did not have a stiff neck. He had generalized hyperreflexia but the toes turned down on plantar stimulation. Results of the finger-nose and heel-knee tests showed evidence of moderately severe cerebellar ataxia on the right and a minimal amount of cerebellar ataxia on the left. There was some hypotonia on the right.

The hemoglobin measured 14.7 gm.; leukocytes numbered 6500 with a normal differential cell count. Roentgenograms of the cervical portion of the spinal column and of the head did not show evidence of any abnormality. An electroencephalogram showed delta waves, grade 1 biparietal occipital, maximal on the left, and generalized dysrhythmia, grade 2. Special contrast studies were then performed by a neurosurgeon. What's Your Diagnosis? Turn to page 764.

Carcinoma of the Ethmoid Sinuses

Chemosurgical Penetration of the Cribiform Plate

Chemosurgery for malignancies has a limited value except in the practice of a few specialty clinics. The authors have extended this therapy into a difficult area with apparent good palliation for a short period.



Fig. 1: H. D. Following subtotal ethmoid-frontal excision and prior to chemosurgery.

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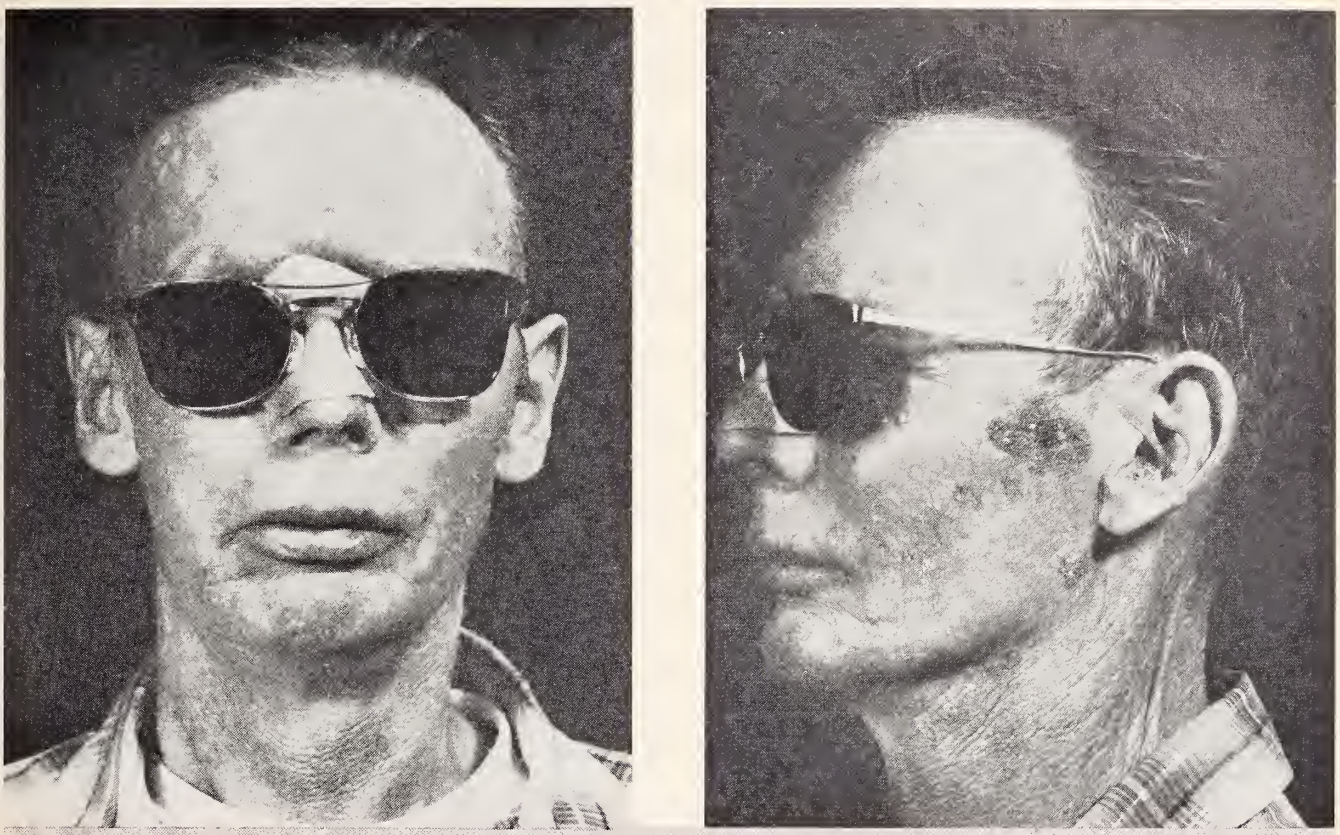


Fig. 3 & 4: H. D. Frontal and side views after chemosurgical treatment; prothesis in place.

OVER THE past few years we have utilized the chemosurgical technique developed by Dr. Frederic E. Mohs* for treating selected cases of cancer. Basically, the method consists of chemical fixation of the involved tissue *in situ* with a paste consisting of zinc chloride, stibnite, and sanguinaria canadensis.[1] This is followed by excision of the demarcated section after varying periods of time and periodic microscopic examination of the tissue. Patients were selected for this form of therapy in Tumor Conference consultation, in which surgical, roentgenological, and chemotherapeutic consultants participated. As a rule, our chemosurgical patients suffer extensive lesions of the face or sinuses and have had recurrence following surgical extirpation and/or radiotherapy. While prolonged palliation is the primary goal, we have on one occasion accomplished an apparent cure.

In his book *Chemosurgery in Cancer, Gangrene and Infections,*[2] published in 1956, Dr. Mohs** states, "Only one patient with carcinoma originating in the ethmoid sinuses was chemosurgically treated. In this case the result was unsuccessful because the cancer not only had invaded the ethmoid and sphenoid sinuses but had extensively invaded through the cribiform plate and involved the dura over an area four centimeters in diameter. The removal of such a large amount of the dura in this area led first to herniation of the cerebral tissue and later to encephalomalacia with exposure of the lateral ventricles and death. If it becomes evident that this structure [cribiform plate] has been eroded over an area greater than one centimeter in diameter, treatment ordinarily should be discontinued because of the danger of fatal cerebral complications." Dr. Mohs does not return to this subject in any of his subsequent publications, nor, to the best of our knowledge, is there a description of successful chemosurgical penetration of the cribiform plate in the literature.

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**Associate Professor of Chemosurgery, Department of Surgery, University of Wisconsin Medical School.

This paper reports the successful treatment of a patient with carcinoma of the ethmoid sinuses, in which the cribiform plate was nearly entirely removed, the dura penetrated, and several millimeters of brain excised using chemosurgery. In addition, we have treated seven patients with lesions of the face and paranasal sinuses, who had either failed to respond or had recurrence following conventional surgical or radiation therapy. We believe there is a definite place for treatment of extensive localized cancer of the head using chemosurgery, as illustrated by the following case report.

Case Report

H. D., a fifty-seven-year-old farmer and construction worker, was first seen at the University Hospitals in February, 1961, with a three months' history of erythema and swelling of the nasal bridge, a purulent draining right lacrimal duct, and associated continuous frontal headache. In March a Denker Antrostomy-right-naso-antral window exploration, revealed a huge squamous-cell carcinoma originating in the ethmoid sinuses and invading the glabella region and the frontal sinuses, as well as up into the cribiform plate. He received twenty-five cobalt radiotherapy treatments between 3/3/61 and 3/31/61 with a total dose of 5000 roentgens in air, which failed to arrest progress of the tumor. Therefore, on 4/28/61 a subtotal excision of the ethmoid and frontal areas including the nasal bone and nasal bridge was carried out, leaving a thin central skin strip. (Fig. 1). No attempt was made to remove the entire tumor, since it extended up into the cribiform plate and laterally into the medial orbital walls. The right antrum was curettaged, as was any gross visible tumor.

Because of the incompleteness of surgical removal it was decided to continue treatment with chemosurgery at a future date. Our basic goal was to provide as long a period of palliation as possible. A course of chemosurgery was started on 7/7/61 and continued until 8/21/61. During this time the cavity was hollowed out laterally and superior-posteriorly with an ever-increasing percentage of microscopic sections negative for carcinoma. Thick applications of the paste were allowed to remain in place beneath a vaseline gauze dressing for 48-72 hours before the well-defined layer of fixated tissue was excised.

When it became apparent that only a paper-thin sheet of cribiform plate remained, the paste was applied to the area for three days, then superficially removed and reapplied for an additional three days. At that time the entire area of about four centimeters in diameter was removed, exposing the frontal lobes. Microscopic section revealed tumor extending into the fibrous duramater and into the vascular piamater, without extension into the gray matter of the brain (Fig. 2). At no time did the patient develop a cerebrospinal fluid leak, herniation of the brain, temperature elevation, infection, or encephalomalacia.

At the time of discharge a prosthesis covering the large facial defect was fitted to a pair of glasses (Figs. 3 and 4) providing a cosmetic effect. The patient died 12/21/61, in his home town, apparently from distant metastases, although an autopsy was not carried out to confirm this. When H. D. was last seen in our hospital in November the exposed brain was well covered with clean, tumor-free granulation tissue.

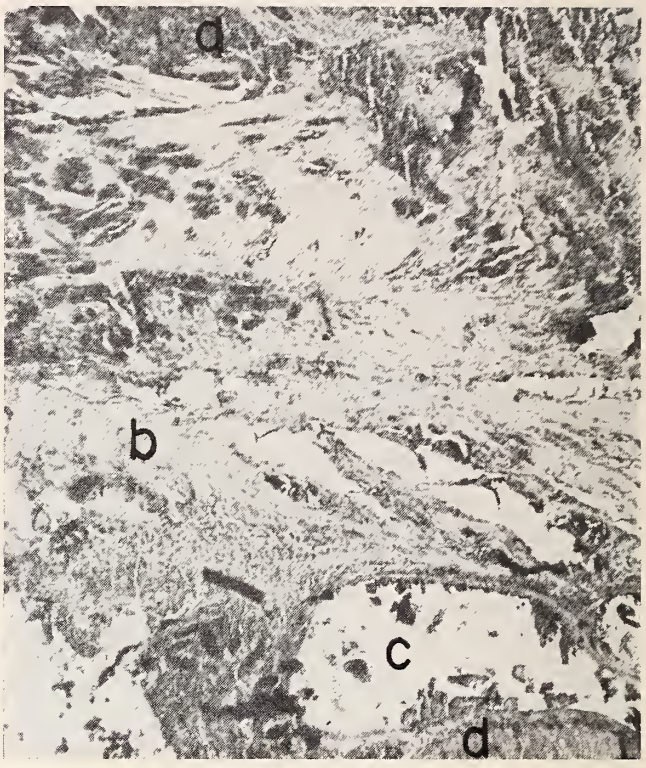


Fig. 2: Microscopic section showing tumor invasion (a) with penetration of fibrous dura (b) and vascular pia mater (c), but no extension into brain (d).

Discussion:

The case is presented to show that the cribiform plate and the overlying meninges and brain can be successfully approached by chemosurgery. The fatal complications of cerebrospinal fluid leak, herniation and encephalomalacia were prevented by allowing a considerable period of time to elapse (six days) between application of the fixating paste and excision, and by restricting the tissue separation to the well-defined zone of demarcation. Used in this way, the authors assume a protective inflammatory-fibrinous capsule is provoked in the brain by the irritative property of the paste at the depth of penetration where its tissue-killing and fixating action is spent.

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TRAUMATIC Uterine Atresia

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THIS SERIOUS complication of curettage of the uterus has been reported by only a few authors in this country and is usually not mentioned in textbooks of obstetrics and gynecology. However, extensive series of cases have been reported by authors in Israel, Germany, France, Denmark and other countries. Although this report is limited to a single case, other unreported cases are known to have occurred in the same metropolitan area in recent years. There is reason to believe that the condition is not rare, is preventable, and consequently is one that should be familiar to all who perform the operation of uterine curettage.

History

The condition was first described by Fritsch[1] in 1894. His patient was a 24-year-old woman with amenorrhoea of two years duration subsequent to a curettage done 24 days after her first delivery. He found a small firm uterus into which it was impossible to introduce the finest sound. He fashioned a cavity with a scalpel and dilator and introduced a laminaria tent; however, two weeks later the cavity had closed and the amenorrhoea continued.

In 1946, Stamer[2] found 37 cases reported in the literature, 20 of which had been reported by Bass in 1927. Stamer published an additional 24 cases that he had seen in the preceding two years.

In 1949, Hald[3] of Copenhagen reported 22 cases and drew attention to the characteristic hysterosalpingogram.

In 1948, Asherman[4] of Tel Aviv reported 29 cases of traumatic amenorrhoea. By 1960, he had observed more than 100 patients with traumatic amenorrhoea and over 250 with corporeal adhesions.

In 1960, Kaestel and Eriksen[5] reported 61 cases from Denmark. Traumatic atresia of the uterus is defined by them as partial or complete obliteration of the cavity of the uterus, occurring most frequently after curettage. Other terms employed are Synechies uterines, Asherman syndrome, and amenorrhoea traumatica, the latter term being employed by Asherman for the partial cervical type of atresia.

Etiology

The condition usually follows curettage done during pregnancy or the puerperium, but formerly was reported after hot intra-uterine douches and chemical and electrical cauterization of the uterine cavity. In a follow-up examination of 141 patients who had curettage within two months after delivery, Erikson and Kaestel[6] found that 33 or 23.4% had developed traumatic atresia of the uterus. The incidence was greatest during the second, third, and fourth weeks after delivery, and when the curettings showed plentiful myometrium and when infection was present.

Pathogenesis

It is believed that atresia of the uterus develops where parts of the cavity opposite one another with injured or denuded myometrium develop granulation tissue and adhere to form bridges, which later become occupied by muscular and connective tissue. The atresia may be total or partial and the latter may be divided into cervico-isthmic atresia and corporal atresia.

Symptomatology

The usual symptoms of traumatic uterine atresia are amenorrhoea or hypomenorrhoea, sterility, and occasionally cyclic abdominal pain. If pregnancy does occur, abortion, placenta praevia, and placenta accreta frequently occur, as has been reported by Musset, et al.[7]

Diagnosis

The diagnosis may be suspected in a patient who develops amenorrhoea following curettage, but has no evidence of endocrine deficiency. The uterus is usually smaller than normal, but may occasionally be enlarged by hematometra. The diagnosis can be confirmed by the inability to pass a sound into the uterine cavity or by hysterosalpingography. However, in most cases of post-partum amenorrhoea other conditions will be found. In a series of 78 women with post-partum amenorrhoea reported by Hunt of the Mayo Clinic,[8] failure of gonadotrophic function of the anterior pituitary or primary ovarian failure was most frequently found. Among the less frequent causes were five cases of cervical atresia and one case of denuded endometrium.

Treatment

Dilatation from below has been the usual treatment in the past with good results in cases of atresia of the cervix and isthmus.

Hunt[8] reported five cases and found resumption of menstruation and subsequent pregnancies in each of the four patients that he was able to follow. However, the prognosis has been poor for patients with corporal atresia or total atresia. Mikulicz-Radecki[9] collected 70 cases from the literature with subsequent pregnancies in only six. Such unsatisfactory results have prompted other methods of treatment. In order to maintain the dilatation, P. Strassman made an incision in the fundus of the uterus and inserted one tube, leaving several centimeters of the tube protruding into the peritoneal cavity. This method has been reported by his son, E. Strassman,[10] and also by Mikulicz-Radecki.[9] The latter treated one case successfully by this method and found reports of 14 cases treated in this manner with subsequent pregnancies in six.

Transplantation of endometrium has been performed by Netter, Musset, Lambert and Salomon,[11] and others. However, Mikulicz-Radecki could find reports of only seven pregnancies occurring among 30 patients treated by this method.

The abdominal approach is preferred by Asherman. After making an incision on the anterior surface of the uterus, he reforms the cavity by blunt finger dissection, and reports that the method is highly successful. He believes that transplantation of any material is unnecessary and superfluous. Topkins,[12] who has reported a series of 25 cases, also advocates this approach.

Prevention

Eriksen and Kaestel[6] advise that curettage be done very gently during pregnancy to avoid removal of any myometrium. They also believe that curettage should not be done during the second to fourth weeks after delivery unless absolutely necessary. Other measures such as dilute intravenous pitocin, or removal of retained placental tissue by finger or ring forceps should be employed at this time if possible.

Case Report

The patient, a 31-year-old white woman, consulted me in May 1961 in regard to amenorrhoea which had been present since the birth of her first child in March 1960.

Her past history was essentially normal except for fibromyomas of the breast which were excised at age 21, and rheumatic fever at age 23, which left her with mitral stenosis, functional class 1. Menarche occurred at age 13, and prior to her first pregnancy the menstrual

interval was 28 days with duration of flow of five days. The pregnancy and delivery were normal, but three weeks after delivery she had a severe hemorrhage with shock. A blood transfusion was given and retained fragments of placental tissue were removed by curettage. Convalescence was normal except that menstruation was not resumed.

On July 2, 1960, 100 mg. of Progesterone in oil was given without any response. A basal metabolic rate was then done and found to be -26. Shortly after this she changed residence and her obstetrician had no opportunity for further investigation. She was then treated by another physician for several months with cytomel 25 mcgm. daily and repeated injections of cyclogesterin, which did not produce even the slightest amount of bleeding from the uterus. She was then referred for another opinion and was first examined by me on May 1, 1961. The examination revealed no evidence of endocrine deficiency and no pelvic abnormality other than a slightly small uterus. The history was thought to be suggestive of Sheehan's syndrome except for the failure to respond to endocrine therapy. A course of cyclic therapy (Premarin and Provera) was prescribed, but again no bleeding occurred, and atresia was then suspected. On the next examination it was found that a sound could be inserted in the uterus to a depth of only two inches and the cavity felt very small. Endometrial biopsy consisted largely of mucus, and embedded in the mucus were fragments of broken-up endometrial glands. The diagnosis of atresia was later confirmed by hysterogram. Several injections were made, but the only filling that could be obtained was of the cervical canal. There appeared to be one drop of oil within the uterine cavity itself. The remaining oil streamed back around the olive tip.

A number of biochemical tests were done later and showed no abnormality. Protein-bound iodine was 5.2 mcgm.%. (However, cytomel had been discontinued only two weeks prior to this test.) Total 17 Ketosteroid excretion was 11.1 mg. in 24 hours. A Thorn test showed excellent response with 200 eosinophils per cubic mm. initially, and only 22 eosinophils per cubic mm. after ACTH. A three-hour glucose tolerance test was also normal.

As the patient was anxious to have further pregnancies, she was scheduled for a D & C and a laparotomy at St. Johns Hospital, St. Paul, on October 25, 1961. Preparation for a laparotomy was made in order to open the uterine cavity from above if the attempt from below was unsuccessful. The uterine cavity could be sounded to a depth of only two inches initially; however, after gentle dilatation with Hegar dilators and large urethral sounds, a depth of three inches was obtained.

Endometrial biopsy at this time showed red cells and fibrin and only a single endometrial gland. To maintain the dilation a Foley catheter with the tip excised was inserted in the uterus and five cc. of water put in the bag. The catheter was kept in the cavity for five days, during which time antibiotics and estrogens were administered.

The depth of three inches was maintained and a repeat hysterosalpingogram on November 9, 1961 showed that the uterine cavity was filled but was rather irregular on the left. The tubes did not appear to be patent, as they were not outlined by the contrast material. However, in spite of the anatomical improvement, menstruation has not been resumed. Also, the uterus is still refractory to stimulation by estrogen and progesterone, apparently due to failure of the endometrium to regenerate.

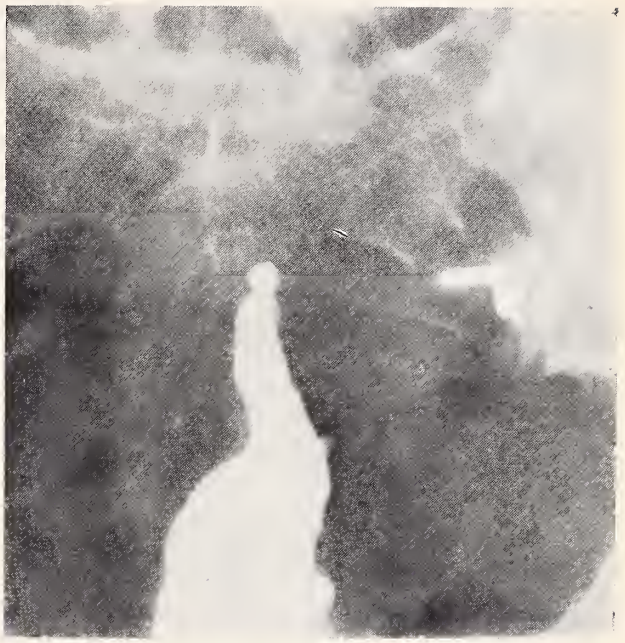


Fig. 1 — Initial film showing only slight filling of uterine cavity.

Summary and Conclusions

A 31-year-old woman with amenorrhoea for 14 months after delivery and subsequent curettage was found to have a traumatic atresia of the uterine cavity. Dilatation from below resulted in anatomical but not functional improvement. The failure of treatment to restore normal reproductive function in many cases makes prevention of



Fig. 2 — After dilatation — showing filling of uterine cavity.

particular importance. It is hoped that increased awareness of traumatic uterine atresia and the more cautious use of curettage after delivery will lessen the possibility of this serious complication of curettage, and also result in an earlier diagnosis when it occurs.

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SODIUM-LOSS SYNDROME

This is a loss or depletion of sodium from the extra-cellular water. This may occur as a result of loss of sodium from the gastrointestinal tract, vomiting, diarrhea, fistula, nasal-gastric suction, or excessive use of exchange resins.

The symptoms include weakness, apathy, lassitude, headache, anorexia, and there may be mental confusion. Thirst is characteristically absent. Shock may result.

The laboratory findings indicate hemo-concentration, elevated hematocrit, a depression in the serum sodium below 135 meg/l and a depression in the serum chloride.

In most patients the treatment consists in the replacement of sodium loss by the administration of sodium chloride. In the chronic sodium-loss cases, hypertonic sodium chloride may be needed.

It is a true saying, that a man must eat a peck of salt with his friend, before he knows him.—Cervantes

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ANSWER TO WHAT'S YOUR DIAGNOSIS

(From page 757)

Ventriculography showed dilation of the entire ventricular system down to the middle of the aqueduct, which was displaced upward and forward by a mass in the posterior fossa.

Suboccipital craniectomy was performed. When the dura was opened the cerebellar tonsils were found to be herniated through the foramen magnum, on the right more so than on the left. A large cystic hemangio-endothelioma was found in the right cerebellar lobe.

The Single Epileptic Seizure in the Adult

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Central nervous system lesions must be considered when adults have unexpected convulsive seizures. Trauma, mass lesions, and vascular disease are common causes of seizures in adult patients.

THE UNEXPECTED convulsive seizure with loss of consciousness is alarming to the patient and his family. The abrupt onset and brutal force of the spell and possible injury to the patient leave a deep impression upon the victim and those who witness a grand mal seizure for the first time. The epileptic seizure is a challenge to the clinician because there are no firmly established criteria for its diagnostic evaluation and management. Numerous conditions can produce convulsions, and the search for these frequently is time-consuming, complicated, and expensive.

This presentation will review morbid states which commonly cause convulsions in the adult and will discuss some of the steps to be taken in the diagnostic evaluation and management of the unexpected seizure. Only grand mal seizures occurring in patients who are more than 30 years old will be considered.

Major Causes of Seizures in the Adult

Generalized seizures in patients of adult age are not rare. Of the 458 patients with grand mal convulsions seen at the Mayo Clinic during 1954, more than 25 per cent had their first spell after the age of 30 years.[1]

Disease categories of major importance in producing seizures in the adult are: trauma of the brain, mass lesions of the brain, and vascular disease of the brain.

The precise statistical incidence of these disease categories is not known. It has been suggested that convulsions commencing in patients who are in the third decade of life are caused predominately by trauma; those in patients who are in the fourth and fifth decades are caused mainly by space-occupying lesions; and those in patients who are in the sixth and seventh decades are most likely of cerebrovascular origin.[2]

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Trauma of the Brain.

Diagnosing post-traumatic epilepsy frequently is difficult, and scientific proof of the causal relationship often is absent. The following arbitrary criteria of post-traumatic epilepsy have been generally accepted: 1. The attack must have been clearly epileptic. 2. There should be no evidence of pretraumatic epilepsy. 3. The time interval between trauma and seizure should be appropriate. 4. Other diseases, intracranial or extracranial, capable of causing convulsions, must be absent.

Laceration of the brain is most important in the production of post-traumatic seizures. About half the patients who develop epilepsy have their initial attack in the first six months after the trauma, and 80 percent have had a seizure by the end of two years.[3] Walker[3] stated: "As a generalization, one might say with reasonable medical certainty that if a person with a closed head injury had had no attack within two years, or a person with an open head injury no seizures within ten years, he has no significantly greater chance of developing fits than any person of comparable age and background."

Mass Lesions of the Brain.

Any person who has his first seizure after he reaches the age of 30 should be suspected of having a brain tumor unless another cause is evident. A review of 1284 consecutive patients of all ages seen at the Mayo Clinic in 1954 for epilepsy revealed that only one per cent with generalized convulsions that began before the age of 30 years had neoplasms, in contrast to 15 per cent of those in whom the spells began at the age of 30 or thereafter.[1] This figure agrees well with those figures compiled at the Mayo Clinic previously[4,5] and at other medical centers.[6,7] Higher figures have been quoted by other authors.[8,9]

In the patient with a brain tumor, epileptic seizures may be the only abnormal manifestation for years. Rasmussen and Blundell[10] reported that of all their patients who had seizures secondary to brain tumors, 40 per cent had them as their initial symptom. Most authors agree that seizures tend to occur more commonly in patients with slow-growing tumors such as low-grade astrocytomas and meningiomas.

Vascular Disease of the Brain.

Cerebrovascular disease accounts for a significant number of seizures that develop in patients more than 50 years old. Richardson and Dodge[11] carefully reviewed the necropsy records of 104 patients with proven cerebral infarction or hemorrhage or both and found that 12 per cent of patients had had at least one convulsion, and six per cent had had recurring convulsions. All patients with seizures had involvement of the cerebral cortex, whereas seizures were not observed when lesions were confined to the subcortical structures. White and co-workers[5] found that cerebrovascular disease was responsible for 40 per cent of seizures commencing in patients who were more than 50 years old, and Niedermeyer[12] noted an incidence as high as 60 per cent in a series with similar age distribution. Such studies emphasize the importance of vascular lesions in producing seizures in older people.

Other Causes.

In addition to the previously discussed disease categories which cause the majority of seizures that commence in adult life, many other conditions affect the central nervous system either directly or indirectly and are capable of producing convulsions. These causes include inflammatory diseases, toxic-metabolic states (including alcoholism), degenerative conditions, and demyelinating processes. Hypoglycemia, repeatedly mentioned as an important cause of epilepsy, only rarely has precipitated epileptic seizures in our experience. Mulder and Rushton[13] reviewed a series of 91 patients with hyperinsulinism and found 16 with true epileptic seizures. In only three was the generalized convulsion the first recognized manifestation of the disease.

Although most seizures probably are caused by one of the previously mentioned diseases, the etiologic basis for a single convulsion cannot be established definitely in a large number of patients despite thorough investigation. Even prolonged observation will not offer additional information in many of these cases.

Diagnostic Evaluation

When a patient says he has had an epileptic seizure the physician has to be certain of the epileptic

nature of the spell. A detailed description of the event by the patient and by persons who witness the spell is the first step in the investigation. Careful inquiry should be made to learn of any "warning symptoms" that may have been experienced by the patient immediately prior to the spell. Some of these "warning symptoms" are: dizziness; blurring of vision; nausea; abdominal or chest sensations; olfactory, gustatory, visual or auditory hallucinations; and feelings of fear. Further inquiry into the presence and type of convulsive movements, the facial color, pulse, respiration, and blood pressure is important. Questions regarding the duration of unconsciousness and the occurrence of tongue biting, urinary and fecal incontinence, postictal sleep, and amnesia should be asked. Neurologic symptoms and signs, such as weakness of an extremity and aphasia, that follow the spell are significant. Knowledge of these manifestations will help to distinguish between seizure and syncope and may help locate the seizure focus in the brain.

Once a description of the actual spell has been obtained, careful inquiry into the patient's past and present history should be made by conducting a systematic review by organs. This should include also a search for seizure-predisposing factors such as alcoholism, emotional and physical exertion, carotid sinus hyperirritability, and orthostatic hypotension. The knowledge that a single epileptic attack has occurred in a patient who was in a fasting state may be of little help alone; but if the history reveals that other symptoms suggestive of hypoglycemia are present, such knowledge may assume significance.

Physical and Laboratory Examination

Detailed physical and neurologic examinations are next in the investigation. Basic laboratory procedures should include urinalysis, leukocyte count, and determination of hemoglobin, sedimentation rate, and blood serologic reaction for syphilis. Also roentgenograms of the chest and skull should be obtained routinely. The need for special studies of the blood and urine, for examination of the spinal fluid, and for electrocardiographic examination should be determined on an individual basis.

The Electroencephalogram

Of greatest importance among laboratory procedures that aid in the diagnostic evaluation of a seizure is the electroencephalographic (EEG) examination. Its value depends largely on the experience of the electroencephalographer, his equipment, and reliable technical assistance. The electroencephalographer must have clinical information about the patient if he is to make a valid and reliable interpretation of his findings.[14]

The electroencephalogram may corroborate the diagnosis and confirm clinical suspicion. If history and clinical examination have not ascertained the nature of the spell, a definite electroencephalographic abnormality may be invaluable in establishing a cerebral cause. Moreover, an electroencephalographic abnormality may aid in locating the lesion and may help decide the extent to which the investigation should be pursued.

Abnormal electroencephalographic changes can be grouped as "focal" and "generalized." Focal electroencephalographic aberrations are of greatest diagnostic value. They not only confirm the presence of a lesion but localize it with considerable accuracy. However, the aberrations tell little of the nature of the lesion. Slow-wave foci as well as focal dysrhythmic changes may be caused by various processes (tumor, infarct, trauma, and so forth), and serial recordings with detailed history and clinical examination often are required to determine the nature of the underlying lesion.[15] Generalized electroencephalographic abnormalities are frequently of limited diagnostic value unless of such specific discharges as paroxysmal bursts of spike-wave patterns.

If a slow-wave focus is found in the immediate postictal period, it has only localizing value. A recheck is required and should be made after a seizure-free interval of at least four or five days. If the slow-wave activity persists, a fairly acute, structural lesion may be expected in the noted area. If a spike focus has replaced the previous postictal slowing, a more chronic, possibly atrophic, lesion may be considered, although similar changes occasionally can be seen in tumorous processes, especially metastatic tumors. If the second electroencephalogram does not show

any abnormality or shows only minor nonspecific changes, serial recordings at regular intervals may be required. It should be emphasized that normal electroencephalographic findings do not exclude the presence of a structural brain lesion, and that not all abnormalities in the electroencephalogram are necessarily related to the condition under investigation.

The Angiograph

Cerebral angiographic and pneumoencephalographic examinations are the neurosurgical procedures most commonly employed in the evaluation of seizures. Their specific indications and relative values will be omitted in this discussion. Normal findings do not assure the absence of a mass lesion. If the seizure appears to be of cerebrovascular origin, these procedures should be used cautiously, because they seem to increase the risk of complications in patients with vascular disease of the brain.

The Evaluation

The intensity of the search for the cause of the convulsion is decided on an individual basis. The factors that influence management are multifold. A patient, 75 years old, who is generally debilitated, is approached differently from a person who experiences a convulsion in the fourth or fifth decade of life. Similarly, a more conservative approach may be used for a patient who lives nearby and can be observed closely than for another who lives in a remote community where medical facilities are limited. Despite these variables, certain manifestations, when present, merit thorough diagnostic evaluation. These are:

(1) a seizure that has focal features indicating a discrete site of origin in the cerebral hemisphere;

(2) abnormal findings on neurologic examination; (3) focal abnormalities, especially slow-wave activity in the electroencephalogram that persist after the immediate postictal period has subsided; and (4) abnormalities in the roentgenograms of the skull suggesting an intracranial lesion.

Treatment

Whether or not the underlying disease process has been discovered, symptomatic antiepileptic therapy must be considered. It has been argued that institution of antiepileptic therapy labels the patient "an epileptic" in the eyes of the public and may cause serious economic and social repercussions. The question will be asked also whether it is essential to treat the patient who has had a single seizure. The physician must weigh all the available evidence in the case before answering these questions. Treatment may be withheld temporarily if the seizure occurred within an emotionally charged situation, under conditions of extreme mental or physical fatigue, or during the night. If the patient is unreliable or tends to depreciate the significance of the seizure, administration of anticonvulsants should be deferred, because the patient may not adhere to the therapy anyhow. If the decision is to treat, only a single, well-established drug should be used, and the drug should be prescribed in small doses that are nontoxic. Because indications for anticonvulsant therapy vary, the following are suggested to serve as a guide:

Variable Indications

1. When the spell is not clearly epileptic and when diagnostic evaluation does not disclose abnormalities, treatment should be deferred.

2. When the seizure is clearly epileptic but the results of all diagnostic studies are normal and the cause of the seizure is unknown, the patient may be informed of the advantages and disadvantages of antiepileptic treatment. An advantage that may be noted is the protection that treatment can afford from additional spells and in turn, from embarrassment and injury associated with a seizure. With protection against additional spells, the chances of subsequent social and economic reprisals will be minimized. The disadvantages of treatment are the absolute necessity of regular intake of drugs, the occasional toxic side effects, and the social stigma established by use of medication.[16]

3. When the seizure is epileptic and diagnostic evaluation has uncovered the underlying disease process, either intracranial or extracranial, anticonvulsant treatment may be administered if the disease remains active or is progressive.

4. When the seizure is epileptic and when neurologic examination or the electroencephalogram reveals abnormalties, treatment may be instituted regardless of whether or not the cause of the convulsion has been found.

Re-evaluation

Whether or not treatment is instituted, continued close observation of the patient is essential. If the cause of the seizure has not been established, neurologic and electroencephalographic examinations should be repeated within three months. If the recheck does not disclose any new findings and if further seizures have not occurred, an interval of six months before the next recheck is permissible. Further examinations at regular intervals should be carried out thereafter.

Duration of Treatment

How long the patient who has suffered a single epileptic seizure and who has been placed on anticonvulsant therapy should continue taking medicine depends on a number of factors. Generally, when he has been seizure-free for a minimum of one year and has continued to show normal electroencephalographic tracings and no abnormalities (or no progression of previous abnormalities) on neurologic examination, an attempt may be made to withdraw medication gradually during a period of three to six months. If the seizure recurs, therapy should be reinstituted. If the patient is free from seizures, and if neurologic examination gives normal results but the electroencephalogram continues to show significant abnormalities, medication should be continued; however, the situation should be reappraised in another year.

A patient who has had a single seizure is not considered an epileptic and need not suffer necessarily from recurrent convulsions. With some exceptions, the seizure should not be allowed to interfere with his social and professional life. It is rarely justified to subject him to the same restrictions as a patient who has recurrent convulsions.

Summary

A single epileptic seizure in the adult requires thorough diagnostic evaluation. Among the many morbid states capable of producing convulsions, the commonest are trauma, mass lesions, and vascular disease of the brain.

Detailed history as well as thorough physical and neurologic examinations of the patient are essential. Also, roentgenograms of the skull and an electroencephalogram must be obtained. The latter has proved to be a valuable diagnostic tool.

The extent of the diagnostic pursuit will depend upon the individual case, but the presence of certain manifestations should prompt close investigation. Indications for symptomatic anticonvulsant therapy also vary.

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HYGEIA

Goddess of Health

Hygeia is associated with the Greek physician, Aesculapius, sometimes as his wife, more often as one of his two daughters who assisted him in his ministrations to the sick. Her name derives from the Greek *hygieia,* meaning health, and has been perpetuated in our *hygiene* and kindred words.

Origins of the pagan cult of Aesculapius are somewhat obscure; but ancient relief sculptures show both Hygeia (Goddess of Health) and her sister Panacea (Goddess of Healing), attending and aiding their father at the bedsides of his patients, Hygeia holding in one hand a cup (presumably of pure, refreshing water) and in the other hand a snake, symbolizing the curative properties of the earth, since the Greeks believed that snakes came out of the ground, imbued with the therapeutic qualities of the earth.

In view of the two daughters' close association with their physician father in his practice their names were naturally included in the oath taken 2500 years ago by medical students in the Temple of Aesculapius, quoted here in part:

> *"I swear by Apollo, the physician, and Aesculapius and Hygeia and Panacea and all the gods and all the goddesses . . . so far as power and discernment shall be mine, I will carry out regimen for the benefit of the sick and will keep them from harm and wrong. To none will I give a deadly drug even if solicited, nor offer counsel to such an end; likewise, to no woman will I give a substance to produce abortion; but guiltless and hallowed will I keep my life and my art. I will cut no one whatever for the stone, but will give way to those who work at this practice. Into whatsoever house I shall enter I will go for the benefit of the sick, holding aloof from all voluntary wrong and corruption, including the seduction of females and males, of freemen and slaves. Whatsoever in my practice or not in my practice I shall see or hear amid the lives of men I will not divulge, as reckoning that all such things should be kept secret . . ."**

Hygeia's Roman counterpart was Valetudo, whence come our derivative *valetudinarian* and other cognate terms.

*Haggard, Howard: "Devils, Drugs, and Doctors," p. 17

Better a little chiding than a great deal of heartbreak.—Shakespeare

Emotionally Disturbed Children

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MINNESOTA HAS been fortunate for several years to have a small but excellent program for the intensive residential treatment of severely emotionally-disturbed children. This program began in 1945 with the opening of the Minnesota Children's Center in St. Paul to provide care for some children. The Center was originally a group care institution for those dependent and neglected children who, as wards of the State Division of Social Welfare, had not been placed or were not placeable in foster homes. The institution provided only short-term care and observation of these children, with an average stay of less than four months. However as these children were increasingly found to have emotional disturbances underlying their inability to adjust in average foster homes, the philosophy and program of the Minnesota Children's Center moved progressively in the direction of group treatment.

Group Living

Early in its development the Children's Center program was designed to offer essentially a neutral living-environment providing a variety of relationships with other children and adults, the relationships with adults designed to demand little emotional involvement. This regimen was suitable for relatively 'unconflicted' or undisturbed children who could benefit by a brief interim placement in a nontraumatic setting while longer-range living plans were being formulated.

This program did not suffice, however, for the more emotionally-damaged, often rejected children, whose behavioral symptoms had become more than public schools and foster homes could comfortably tolerate. By 1951 the Children's Center's program had evolved to the point where it was recognized and listed in a publication of the U.S. Children's Bureau. Thirty-six such programs were reported as existent in the country at that time. The Minnesota Children's Center then had approximately twelve staff members for a maximum capacity of thirty children; most professional services—psychiatric, psychological, casework — were "borrowed" from other community or state agencies.

The Treatment Program

In recent years the children admitted to the treatment program have usually been those with

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serious neurotic-character or prepsychotic disturbances, who had previously received all the casework treatment or outpatient psychotherapy available in their home communities. The ages ranged from 8 to 15 years.

Living Routine

As the living routine and much of the recreation program is structured around smaller groups, new children admitted must be selected according to how they will fit into the existing unit. Group pressure rather than authoritative control is one of the most important elements, demanding socialization and impulse control from the child.

Being Accepted

Every effort is made to build treatment into the continuous living situation. Symptomatic behavior is tolerated, initially even to extremes, since it is vital that the child feel accepted as he is. Gradually the child finds that his behavior is not gaining him the results that he anticipated from past experience: staff members are not frightened, threatened, angered, or seduced by his efforts. No longer effective are the behavioral weapons in the child's arsenal of defenses to cope with a hostile world; tolerance, acceptance and understanding are repeatedly encountered by the child. He may at first misinterpret these attitudes as weakness in the staff, or even permissiveness or an attitude of condoning his acting-out. Before long, however, his peer group begins reacting to his provocative acts, and he discovers for himself that positive actions gain more satisfactions than the familiar negative, destructive behavior. When at this point he stops to question his whole approach to his life problems, treatment has begun!

Relinquish Hostility

The basic treatment philosophy is that the child must start to form meaningful, positive, interpersonal relationships with some staff members before he will be ready, or even able, to give up his hostile, aggressive facade and to relinquish his destructive, acting-out impulses to attack, punish, and seek immediate gratification for his pleasure-driven instinctual urges. To this end, group pressure, group meetings, individual therapy interviews, and, most of all, continual structuring of the daily living situation are utilized in a closely-coordinated therapeutic effort.

There are no locked doors or windows confining children at the Center, as is often the case in adult mental hospitals. The more open doors there are, the less challenge there is to run away. Locked doors, or arbitrary and even punitive confinement, serve only to further arouse frightened, angry children and to reinforce their delusion that the world is hostile.

The Influence of the Counselors

The strength of the staff is in the counselors — a group of highly-motivated, generally younger adults with college backgrounds in diverse areas. These individuals must be dedicated to work at an extremely difficult, demanding job for inadequate financial rewards. As there is no adequate training program for the counselor role, continuing, intensive in-service training is a vital part of the residential treatment program. In comparison with a staff of twelve for thirty children eleven years ago, at the president time there are forty-three on the staff, including counselors and professional personnel, for twenty-six children.

Consultation with Parents

Children are referred for possible admission by county welfare agencies, psychiatric and child guidance clinics, and private child welfare agencies. The child, his parents, and the referring caseworker are seen in an evaluation consultation before the admission decision is made. At present, all referrals are made through a county welfare agency. This arrangement provides necessary financial help, as few families can afford the cost of almost $10,000 a year per child. Untherapeutic or even destructive interruptions of treatment are prevented; also interference by confused or misguided parents or families is precluded.

Individual Care

Individual therapy has generally been conducted by caseworkers with direction from the consultant child psychiatrist. Social group workers direct the living and activity programs in a totally therapeutic milieu. This twenty-four-hour-a-day-treatment emphasis is one of the important elements which make residential treatment successful with children who have been refractory to all other treatment efforts.

Seriously disturbed children are so limited in their personality strengths that they must be treated whenever and wherever emotional pathology comes to the surface; often these children are not integrated enough to contain their problems until the time for their next scheduled individual interview. Hence the necessity for the entire treatment-center staff to be knowledgeable about thereapeutic goals and methods. Originally the caseworkers were on the staff of the State Child Welfare Division or the Child Welfare Agencies which referred the child to the Center. They would come to the Center regularly to see their younsters, but, not being an integral part of the institution's staff, they were not able to keep sufficiently aware of the many significant events in the child's every-day life relevant to the therapy interview. A few youngsters went out for psychiatric interviews in the community, but this too was generally unsatisfactory because of the difficulties in communication and coordination between the therapist and the treatment center. While regular child psychiatric consultation has been a part of the program since 1950, it has been merely on a part-time basis; only in the past year with an additional consultant has there been sufficient time to provide a few of the children with regular weekly psychotherapeutic interviews. Psychological services also had been on an infrequent, part-time basis until the past year, when a full-time psychologist was added to the staff.

Other Sources

General medical, surgical and dental care has always been obtained from practitioners in the community, the use of near-by physicians on a family-doctor basis having many advantages. Nursing care by a staff member has been deliberately minimal. Residential treatment centers throughout the country are generally not hospital-oriented but are much more in the nature of family, home-type settings. The function of the one nurse usually on the Center staff is similar to a mother's nursing role in the normal family; she administers the tranquilizer and antidepressant medications which are used for about half the children.

Programs such as the Minnesota Children's Treatment Center are difficult to finance, hard to staff, and a problem to operate. Citizens, communities, and often even state legislators who must provide the funds for such a public program have difficulty understanding what goes on in such an unusual, unhospital-like setting. Treatment is a long, arduous process with many setbacks and sometimes with limited goals. While there are a large number of disturbed children, not all are amenable to residential treatment, and simply constructing more buildings does not provide more of such treatment. When a residential treatment program becomes too large in one institution, it soon loses its therapeutic value, becomes institutional, and before long, even custodial. Individual, meaningful contacts are lost and communication breaks down; rules, regulations, and routines replace a sensitive dynamic philosophy.

Minnesota is fortunate in having a program that has survived and grown in the past 17 years.

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In the realm of observation chance favors only the mind prepared.—Pasteur

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How much better is it to weep at joy than to joy at weeping.—Shakespeare

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Surgical Therapy of

This paper reports two cases of laryngeal web treated successfully by tantalum fin implantation.

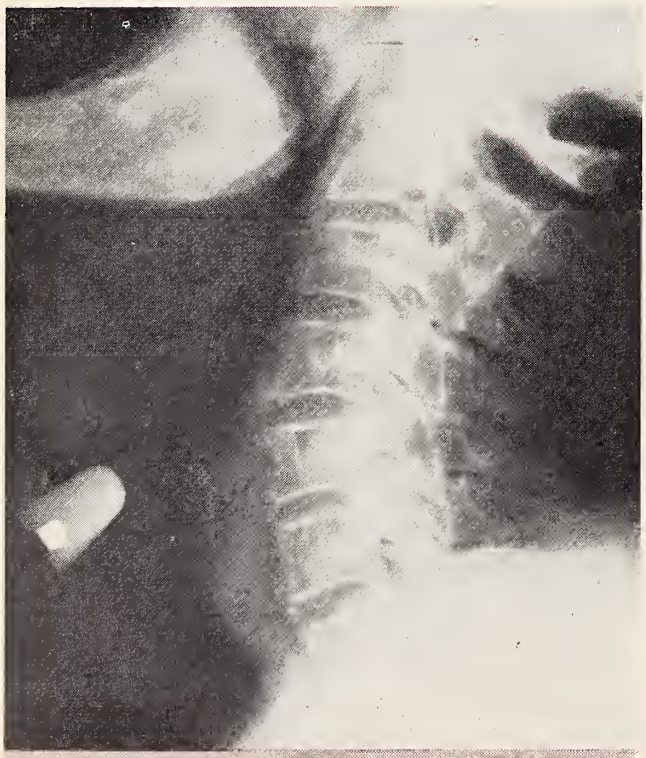


Fig. 1: Lateral X-ray view of larynx showing tantalum keel in place.

A LARYNGEAL web is a thin membrane, or a scar of variable thickness, between the anterior ends of the vocal cords. It causes hoarseness, and if large enough can interfere with the airway. The location and appearance of a laryngeal web may be illustrated roughly by spreading the fingers apart and inspecting the web between them. The fingers in this example represent the vocal cords, and the web the anterior laryngeal commissure. Fortunately, the problem caused by a laryngeal web has a novel and effective solution. This lies in recreating an anterior laryngeal commissure. The integrity of the voice depends upon a sharp angle between the vocal cords at the anterior commissure.

Etiology

Rarely are webs congenital. Acquired webs are caused by external trauma, cicatrizing infections (e. g. diphtheria), improper laryngeal biopsy and removal of papilloma. As the raw surfaces of the anterior ends of the vocal cords abut, they adhere. Granulation tissue finally is replaced by a scar in the form of a web.

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LARYNGEAL WEBS



Fig. 2: Anteroposterior X-ray view showing tantalum keel between vocal cords.

Treatment

Treatment has included laryngeal dilatation, excision, and application of a skin graft over a stent, and the use of a silver plate between the vocal cords.[1,2,3,4] Simple excision is usually followed by recurrence. Dilatation has only a slight chance of success. The problem with grafts held in place by molds is one of securing the obturator, thus preventing motion between the larynx and the graft.

Haslinger first placed a silver plate between the cords and anchored it to the skin. However, relative motion between the skin and larynx permitted the plate to move. For fear of infection, Haslinger abandoned his method.

Iglauer[5] pointed out the similarity between webbing and syndactylism; if a tract could be established at the anterior laryngeal commissure, the cords would stay apart when separated. Based on these facts, McNaught[6] devised a method of placing a thin tantalum plate between the vocal cords and anchoring it to the thyroid cartilage. This caused little reaction and kept the cords separated until epithelialization occurred. Since the prosthesis was not fastened to the skin, there was no motion problem.

Case Reports

Recently two cases of laryngeal webbing have been treated at the University Hospital using McNaught's keel procedure.

Case 1:

A 61-year-old woman gave a history of hoarseness for three years. Two years before, benign vocal cord polyps had been removed by direct laryngoscopy. The operator stated that the anterior two-thirds of each vocal cord had undergone polypoid degeneration. This procedure was followed by persistent hoarseness and the discovery of webbing in the anterior commissure. After two years of indecision, the patient consented to have her web treated. Using a vertical incision, the thyroid cartilage was exposed. After incising the perichondrium the cartilage was split in the midline with a saw. With an assistant observing through a laryngoscope and guiding him, the surgeon incised the web. He then seated a tantalum keel between the vocal cords. The keel is seven thousandths of an inch thick and consists of a keel proper and three prongs. These prongs are bent over external to the thyroid cartilage beneath the infrahyoid muscles securing the prosthesis. General anesthesia was used, and no tracheotomy was necessary. Postoperatively there was immediate improvement in the patient's voice. Four month's later the keel was removed under local anesthesia with slight additional voice improvement.

Case 2:

A 74-year-old man gave a history of a severe sore throat followed by generalized muscle weakness. Clin-



Fig. 3: View of keel between the vocal cords drawn from life through the laryngoscope.

ically this represented laryngeal diphtheria and post-diphthertis polyneutitis. Although no laryngeal paralysis was present, there was a webbing in the anterior commissure. Again using a thyroid splitting approach and local anesthesia, the operator was guided by an assistant through a laryngoscope. When the tantalum keel was placed between the vocal cords, there was immediate voice improvement. Three months later, this prosthesis was removed with no sign of web recurrence.

Thus the problem of laryngeal reconstruction as specifically related to anterior commissure webbing has been found to have a successful and simple solution.

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Drawing of larynx showing keel in place (Figure 3) was made in the operating room by Mr. John Desley, Department of Medical Illustration and Photography, University of Minnesota Medical School.

What makes all doctrines clean and clear? About two hundred pounds a year.
—Butler

IT'S THE LAW

Veneral disease is reportable in every state. Once the physician has fulfilled the legal requirements and made the report he has no further responsibility. In the event the patient does not take steps to be treated for the venereal disease, or discontinues tratmnt prior or becoming noninfectious, the health authorities take over and exert such enforcement powers as the statutes and rules in their state give to them.

As far as the laws of mathematics refer to reality, they are not certain, and as they are certain, they do not refer to reality.—Einstein

---

You are a king by your own fireside, as much as any Monarch in his throne.—Cervantes

Complications of False Diverticula of Jejunum

JOHN F. PERRY, JR., M.D., Ph.D.*
R. JAMES McCLELLAN, M.D.*
St. Paul, Minn.

ALTHOUGH FALSE diverticula of the jejunum and ileum are uncommon and only rarely responsible for clinical symptoms, yet serious and potentially lethal complications of these lesions occur and warrant their consideration in the differential diagnosis of several clinical syndromes.

The purpose of this paper is to report briefly the case history of a patient with jejunal diverticulosis complicated by perforation and peritonitis, and to mention the major complications associated with false diverticula of the jejunum and ileum. This is the thirty-fifth reported patient with perforation of a false diverticulum of jejunum or ileum and with peritonitis. Herrington[16] has recently reviewed all previously reported cases with this complication and has presented a patient of his own.

Case Report

This 88-year-old white male was in good health until 48 hours prior to admission to Ancker Hospital on January 7, 1963 when he had experienced a sudden onset of diffuse abdominal pain soon after eating his evening meal. The pain, intially cramping in character, became steady and increased in intensity. He vomited once shortly after onset and had passed no stools or gas thereafter. There was no history of hernia, melena, change in bowel habits, diarrhea or constipation. Past history included a cholecystectomy in 1955 at which time an X ray of the upper gastrointestinal tract had shown a small hiatal hernia to be present.

The patient appeared acutely ill. Pertinent physical findings included blood pressure of 160/80. The heart was enlarged and cardiac rhythm grossly irregular. The skin of abdomen and thighs was blue and mottled; there was a well-healed right subcostal scar. The abdomen was distended with generalized tenderness and rebound tenderness. Rectal examination was remarkable only in that diffuse pelvic tenderness was present.

The hemoglobin was 16.2 gms.; the white blood count was 17,000 with 90% polymorphonuclear leucocytes. Flat and upright X rays of the abdomen showed

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distension of small bowel loops and the proximal one-half of the colon. There was no free air in the peritoneal cavity. A barium enema demonstrated no evidence of an intrinsic lesion of the colon.

After large bowel obstruction had been excluded, the most likely diagnosis appeared to be mesenteric vascular occlusion secondary to an embolus, or peritonitis from one of a variety of causes. Although laparotomy was considered imperative the patient refused to be operated upon and died 12 hours following admission despite supportive treatment.

Autopsy

Pertinent anatomical findings were confined to the alimentary tract and peritoneal cavity. The peritoneal surfaces were covered with fibrinous exudate and the peritoneal cavity contained several hundred milliliters of cloudy purulent-appearing fluid. Scattered areas of fat necrosis were apparent. Esophagus, stomach and duodenum were normal. The jejunum showed multiple diverticula measuring up to three cm. in diameter and located along the mesenteric attachment. The orifices were generally narrow with thin walls. One diverticulum, located 50 cm. distal to the ligament of Treitz, had a perforation about three mm. in diameter, from which intestinal content was leaking. The remainder of small bowel and colon were normal. The remaining anatomical findings did not appear to be significant as far as the patient's terminal illness and death were concerned.

Discussion

The term false diverticula is used in this discussion to distinguish these lesions from the true diverticulum of Meckel. Duodenal diverticula, also false diverticula, are likewise excluded. The lesions under consideration are outpouchings of ileum and jejunum, usually located on the mesenteric border, and sometimes protruding into the mesentery itself. The wall, which consists of serosa, submucosa and mucosa, may be paper-thin, making it difficult to find the diverticulum between the leaves of the mesentery.[3] The diverticula may be single or multiple, and when multiple are more frequent in proximal jejunum and decrease in number distally.[18]

Sir Astley Cooper's[7] is the first description of diverticulosis of the jejunum. Gordinier and Sampson[14] first reported this condition in a living patient at operation in 1906. They were unable to find a single case reported in the literature in which clinical symptoms had arisen from diverticula of small intestine up to this time. In 1920 Case[6] first demonstrated that the diagnosis of diverticulosis of the jejunum and ileum could be made by X ray.

The reported incidence of small intestinal diverticulosis has varied considerably. For example, in autopsy material Rosedale[22] reported in 1935 that jejunal diverticulosis had been observed only three times in 5000 autopsies; yet the following year Rosedale and Lawrence[23] found an incidence of jejunal diverticulosis of four cases in 300 autopsies when the small bowel had been insufflated with air under moderate pressure. Case[6] reported five patients (four jejunal, one ileal) with diverticulosis of the small intestine out of a total of 6847 barium studies of the small bowel. In the same material he was able to recognize 85 with duodenal diverticula. Rankin and Martin[21] found only three patients with diverticulosis of the small bowel in 956 X-ray examinations of the small bowel from 1927-1931. Orr and Russell[20] reported an X-ray incidence of false diverticula of the small bowel of nine in 2161 (0.42%).

In clinical material Fraser[13] found only one instance of jejunal diverticulosis in 5000 case records of the Royal Victoria Hospital in Belfast. Benson, Dixon and Waugh[4] reported 122 cases of diverticula of the small bowel exclusive of duodenal and Meckel's diverticula seen at the Mayo Clinic from 1902-1942 inclusive. Eighty-five of these had been discovered at autopsy, 16 by X-ray examination and 21 at operation. Baskin and Mayo,[3] in a later report from the same institution, found 87 cases of jejunal diverticulosis diagnosed by laparotomy or X ray in the nine-year period from 1943-1951. No autopsy material was included.

How frequently is diverticulosis of the small bowel associated with symptoms? The literature contains numerous reports of a single case or a few cases of diverticulosis associated with symptoms. It is more likely that the patients with manifest disease have been reported. In the earlier report from the Mayo Clinic,[4,11] in 85 autopsy cases, the diverticulosis was the probable cause of death in only one. In the total experience

of 122 cases, complications of the diverticulosis had occurred in 13 patients. In the later report of Baskin and Mayo[3] from the same institution concerning 87 patients with jejunal or ileal diverticulosis, nine (10.4%) had complications requiring surgical procedures; 25 (28.7%) had vague abdominal symptoms for which no other cause was found, and 53 (60.9%) had diverticulosis which was found incidentally and was responsible for no symptoms. Lee and Finby[18] have recently reported 45 patients with jejunal and ileal diverticulosis. In only two of the patients were the diverticula related to the patients' complaints. When viewed in the light of such collected series it appears that most false diverticula of small bowel do not give rise to serious complications.

There is, however, ample documentation of the seriousness of these lesions when complications do occur. In addition to vague abdominal symptoms which may be related to the diverticulosis, acute and chronic intestinal obstruction,[4,13,14] inflammatory disturbances,[4,12] hemorrhage, [25,26] perforation and peritonitis,[1,2,5,14,16,24] foreign bodies,[19] neoplasms,[4,10] enteroliths,[27] and steatorrhea with or without megaloblastic anemia[8,17] have been reported. Several of these complications have occurred with sufficient frequency to warrant their recognition and understanding.

Intestinal Obstruction

Waugh and associates [4,11] state that acute intestinal obstruction is the most common complication of diverticulosis of jejunum and have described a syndrome of diverticulitis and chronic intestinal obstruction. Gerster[15] has recorded 128 papers containing data on 187 cases of jejunal diverticula. Included in the summary are a number of patients with acute or chronic intestinal obstruction resulting from the diverticula. Stromme[28] has called attention to the fact that air-fluid levels in multiple small intestinal diverticula uncomplicated by obstruction may result in a radiographic appearance in abdominal upright films similar to that of acute intestinal obstruction and lead to confusion in diagnosis unless the true character of the lesion is recognized.

Perforation and Peritonitis

Perforation of small bowel diverticulum has usually resulted in a clinical picture of peritonitis simulating that of perforated ulcer or appendicitis. Although an inflammatory process involving the diverticulum has usually been thought to be responsible for perforation, blunt trauma to the abdomen[1,2,5,24] or the presence of a foreign body in the diverticulum have also been incriminated. [19,27] Despite the dramatic nature of the illness in the majority of cases, Herrington[16] reported seven deaths among the 33 patients reviewed by him. It was his opinion that some of these deaths which occurred in earlier years might have been avoidable with present-day methods of surgical care. Treatment by excision of the perforated diverticulum and closure of the defect if the diverticulum is small, or excision of the intestinal segment bearing the perforated diverticulum with end-to-end anastomisis appears the logical treatment. If the perforation involves one of a series of diverticula confined to a limited segment of small bowel, the entire involved area should be exercised.

Hemorrhage

The problem of massive hemorrhage associated with jejunal diverticulosis has been recently reviewed by Silen and associates,[26] who found 17 cases and reported two additional patients of their own with this complication. Shackelford and Marcus[25] collected from the literature 21 cases of jejunal diverticulosis with hemorrhage and added three cases of their own. The paper of Silen and associates[26] which appeared just prior to their report is not mentioned. It would appear therefore that there have been at least 26 patients with this complication recorded in the literature. Although the complication appears to be a rare one, it is possible that some patients with massive gastrointestinal hemorrhage for whom the cause of bleeding cannot be determined are in fact bleeding from such small bowel diverticula. Hemorrhage arising from this lesion may be erroneously attributed to peptic ulcer or sigmoid diverticulitis.

Megaloblastic Anemia and/or Steatorrhea

Johnson and Wysor[17] found 25 cases of jejunal diverticulosis associated with megaloblastic anemia and/or intestinal malabsorption in the literature since 1949 and emphasized that the syndrome is being recognized with increasing

frequency. Crawford and Freeman[8] recently described a patient with non-Addisonian megaloblastic anemia due to small bowel diverticulosis and state that 24 patients with this disease have been reported. The two patients with this complication reported by Johnson and Wyson[17] are not included in their references.

It appears that the megaloblastic anemia found in association with small bowel diverticulosis is secondary to bacterial overgrowth in the blind sacs and utilization of vitamin B_{12} by these organisms,[9] a situation similar to that encountered in the blind loop syndrome. The best support for this has been the dramatic response of the anemia and improvement in the Schilling test after tetracycline administration.[17] Other bacterial-induced metabolic derangements have been implicated as the cause of malabsorption of fat and foodstuffs.[17]

Summary

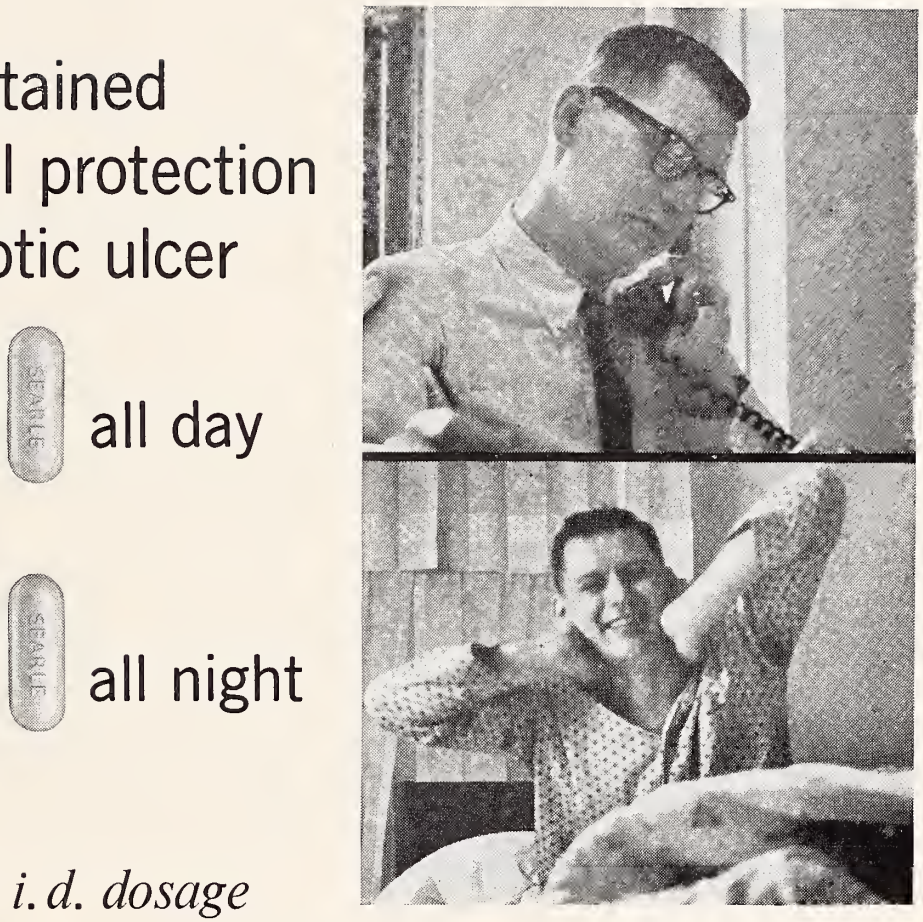
1. The case record of a patient with jejunal diverticulosis complicated by spontaneous rupture and peritonitis has been presented. This is the thirty-fifth patient with this complication recorded in the literature.
2. The complications of acquired diverticula of the small bowel are mentioned; and the more frequent ones, obstruction, perforation, hemorrhage, and malabsorption with megaloblastic anemia or steatorrhea are briefly discussed.

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By a small sample may we judge the whole piece.—Cervantes

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Xerostomia, mydriasis and, occasionally, hesitancy in urination. Theoretically, a curare-like action may occur.

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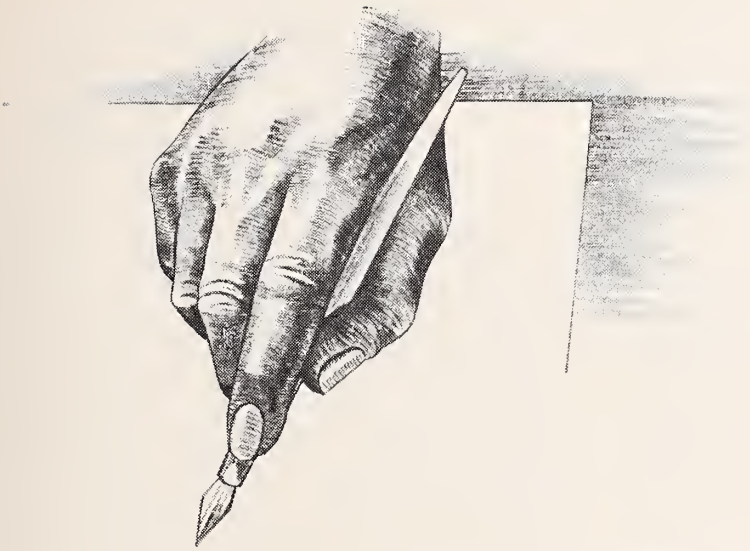
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EDITORIALS

Bits of String

HOSPITAL RECORDS do serve a useful purpose; but 90 percent of that purpose has been served by the time the patient leaves the hospital. No one would question the value of a good record-complete, factual, and precise. A record should be a running report of daily observations and opinions which, without having been recorded, may in retrospect have a chameleon-like way of changing to agree with the developing diagnosis. Complete objectivity in both must be maintained for diagnostic accuracy.

Staccato and telegraphic longhand notes do minimize the nuisance of laboriously writing out a full report in detail; but who except the author himself can interpret a few illegible semiphrases, puzzling abbreviation, and baffling alphabetical sequences. Even he may subsequently be confused by his own hieroglyphics; only he can surmise what he must have been thinking when he jotted down those symbols, ellipses, and ideograms.

Nor are compendious longhand reports necessarily notable for complete and factual information, as they often require the personal interpretation of the author himself, who may very well be unavailable when interpretation is needed.

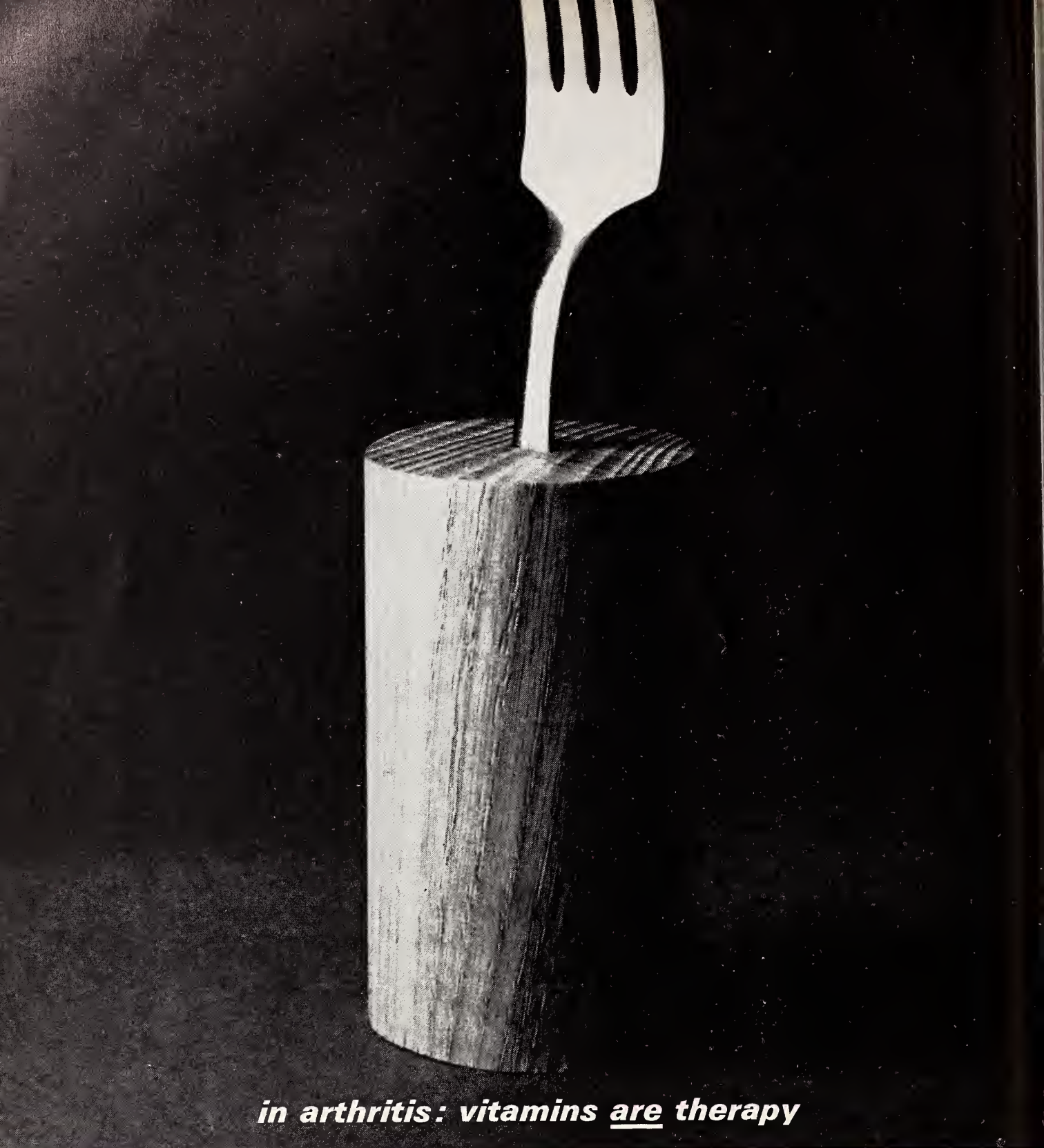
A plea is therefore being made here for more adequate, accurate and precise records in the first instance: such as would be possible with the aid of a dictating machine and a typist.

However, the currenty popular theme in hospital organization seems to be a demand for microfilm copies of the almost useless and endless supply of illegible records which have been accumulating for the past 30 or 40 years and now occupy the cobweb-filled files of the medical records libraries. The University of Pennsylvania boasts of having at hand 87 years of continuous records, constituting 27 different sets, each with its own numbering system; a staggering accumulation of 800,000 records.

A 300-bed private hospital will accumulate between 10,000 and 15,000 new records each year. By extrapolation, the total cost for microfilming old records will be substantial. A study, by the Illinois Association of Medical Records, indicates that of records older than 15 years only 7.5 per cent were ever recalled, less than 5 percent were used for medical-legal purposes, and less than 1 per cent were utilized for research. On a cost accounting basis, and again by extrapolation, the expense of recalling an old record will be in the neighborhood of $45.00.

The argument in favor of saving records is well known and valid to a degree, but the statute of limitations for hospitals runs out in

Continued



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six years; and it would seem that science and posterity are poorly served with stack upon stack of largely illegible microfilm records which become doubly useless when the eager investigator faces the additional inconvenience of getting out and assembling the projector, which does not turn the pages as he may wish them to be turned.

Then what about the patient who has his medical record in another hospital? Does the records committee scream for a copy? Seldom! More likely they ask for further details from the patient himself and let it go at that.

The amassing and hoarding of microfilm records might be compared to the squirrel-like habits of the meticulous spinster who carefully labeled and stored in her attic "bits of string serving no useful purpose."

My plea is for better records *in the first place*. Store them for fifteen years; then discard them. Spend the additional money for speedy and efficent dictating and typing facilities.

The microfilm sales representative did a good job. Now let's call in the dictaphone salesman again.

Carl O. Rice, M.D.

Letters to the Editor:

To the Editor:

I was glad to meet with your committee Thursday evening. Let me comment, first, on your excellent and efficient board of editors. I was impressed by the very evident interest they displayed in Minnesota Medicine, and their clear understanding of the problems involved.

I have been on the board for over thirty years, and believe that I was able to contribute something during the earlier days. More recently I have come to doubt that I am really useful, and not being of use, I have felt I should resign, giving place to someone who can add to the effort something constructive.

As a final comment let me remark upon the excellent job you are doing as editor. Thank you. Hail and fare-ye well!

THOMAS A. PEPPARD, M.D.
Minneapolis, Minn.

Editors Note: To a man who has served his profession proudly, ethically, and with profound dignity; to one who has been an inspiration and a guiding light to many students; to a man, a gentleman, and a noble individual — we thank you!

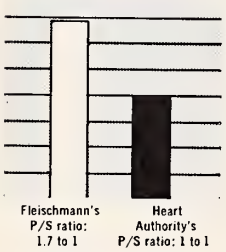
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*"The Regulation of Dietary Fat," Council on Foods and Nutrition of the American Medical Association. J.A.M.A., Vol. 181, No. 5 (August 4, 1962).



Abstracts, Briefs and Commentaries

FUNCTION OF LYMPHOCYTES

Recolonization of myeloid tissues by infused cell suspensions of various origin permits heavily irradiated mice to survive the acute radiation syndrome, but only with restoration of the lymphatic tissues do the mice thrive and avoid "secondary disease." "Secondary disease," "runt disease," and the syndrome following surgical excision of the thymus in newborn are all associated with aplasia of lymphoid tissue. The unthriftiness of these animals may be due to loss of trophic properties of lymphocytes. The clinical features of some adult cases of reticuloendothelioses (eg. Hodgkin's disease) and of infants with hereditary lymphoplasmacytic dysgenesia may well be due similarly to trophic as well as immunological factors connected with lymphoid aplasia.

Courtesy of References and Reviews
Journal of the American Medical Association

Loutit, J. F.
Lancet 2:1106 Nov 24 1962

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Quinidine therapy was given to 274 unselected patients with chronic auricular fibrillation. Sinus rhythm was restored in 47% of the cases. The main risk was sudden loss of consciousness, which occurred in 12 patients, and was due to various cardiac arrhythmias or respiratory depression. The reactions were usually of short duration, and all patients recovered. Treatment should start immediately with artificial respiration and, if needed, closed chest cardiac massage. In the author's experience the administration of isoproterenol (Isuprel) sublingually was valuable during bradycardia or ventricular arrhythmias, and ephedrine, given intramuscularly, was effective when the blood pressure fell.

Courtesy of References and Reviews
Journal of the American Medical Association

Rokseth, R., and Storstein, O. Arch Intern Med 111:184 Feb 1963

COLON POLYPS

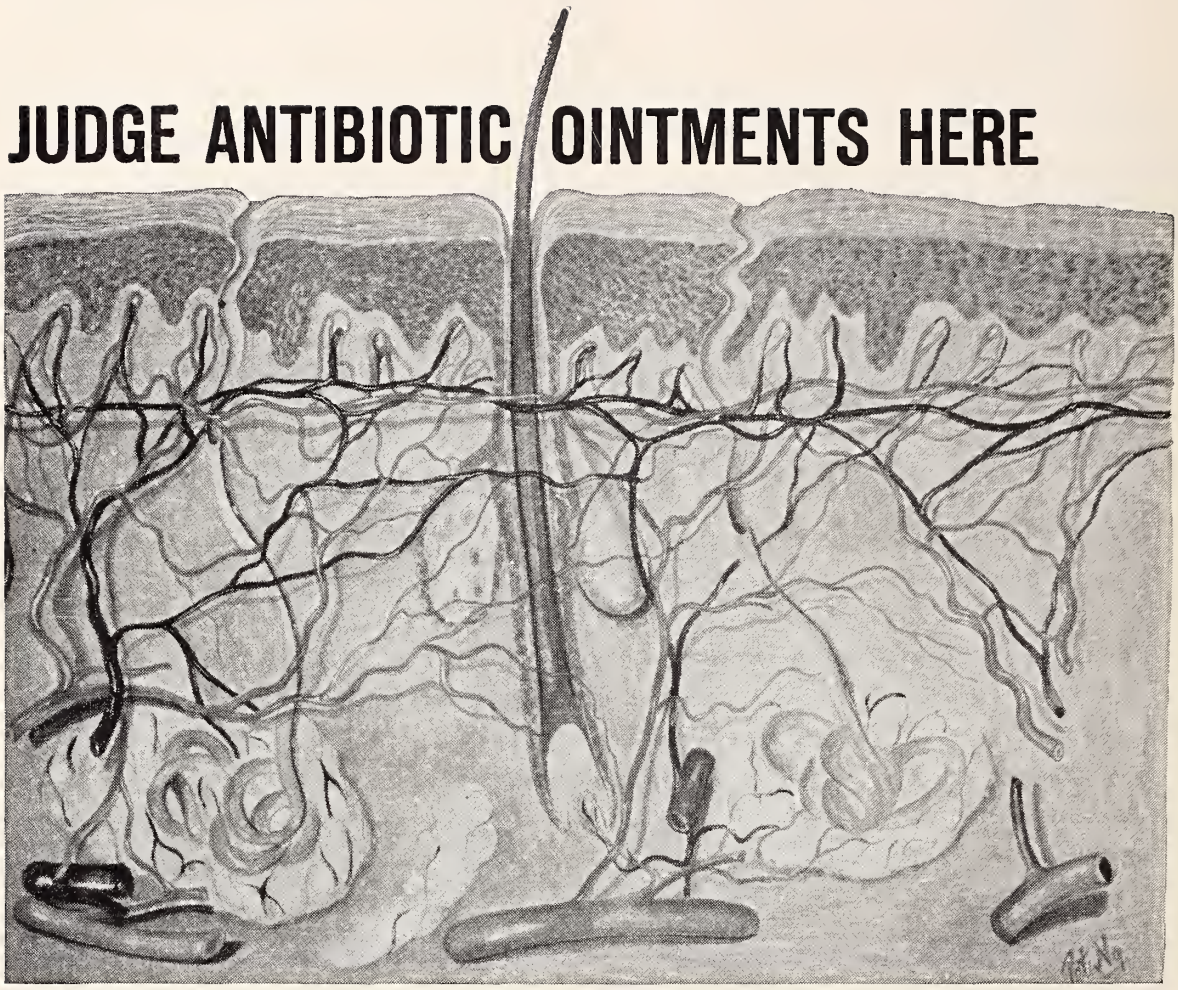
Until recently, most authorities advocated surgical removal of all colonic polyps, in the belief that every polyp is a potential cancer. However, data published by a number of investigators indicate a necessity for reevaluation of formerly accepted concepts and conclusions. Since 1958 the authors had suggested that the smaller asymtomatic colonic polyp beyond the reach of the endoscope, especially in the older patient or in the surgical risk patient, should be managed conservatively and followed up by periodic roentgenographic studies. They had an opportunity to evaluate by roentgenographic methods approximately 300 patients with colonic polyps. The vast majority of these polyps were detected by high kilovoltage compression techniques. They recommend that polypoid tumors larger than 1 cm. in size should be removed. However, in older patients, especially those with medical complications, larger lesions may be followed roentgenographically and the advisability of surgery determined on the basis of growth or absence of growth. If a polyp increases in size during the first year of observation, surgical removal should be considered on the premise that a growing lesion may be a malignant lesion. The doubling in volume of a polyp in the first 6 to 12 months or less of observation indicates a malignant or potentially malignant lesion and the polypoid tumor should be removed. Slow growth or no growth over observation periods of several years indicates a benign tumor. In case of sudden acceleration of growth the polyp should be removed. Autopsy studies have proved that 50% or more of older patients have one or more colonic polyps, the vast majority being benign lesions. One cannot justify surgical removal of all polyps since theoretically surgery would be necessary in 1 out of every 2 patients over 60. The surgical risks would greatly exceed the risk of cancer.

Courtesy of References and Reviews
Journal of the American Medical Association

Figiel, L., Figiel, S., and Wietersen, F. Amer J Roentgenol 88:721 Oct 1962

Continued

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No in vitro test can duplicate a clinical situation on living skin. 'Neosporin' (polymyxin B—bacitracin—neomycin) Antibiotic Ointment has consistently proven its effectiveness in thousands of cases of bacterial skin infection. The spectra of the three antibiotics overlap in such a way as to provide bactericidal action against most pathogenic bacteria likely to be found topically. Diffusion of the antibiotics from the special petrolatum base is rapid since they are insoluble in the petrolatum, but readily soluble in tissue fluids. The Ointment is bland and rarely sensitizes.

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CRYPTOCOCCIC MENINGITIS

Thirty patients with cryptococcic meningitis were treated with amphotericin B. Fifty-three per cent were apparently cured after their first course of therapy, 30% relapsed and were treated successfully, and 17% failed to respond to therapy. All relapses occurred within 12 months after completion of therapy. Relapse rates were unrelated to the total dose of drug given. Sixty-two per cent of cases of cryptococcic meningitis had coexisting diseases, Hodgkin's disease and mild diabetes being most frequent. Corticosteroid therapy preceded the development of crytococcal meningitis in 10 patients. Amphotericin B therapy was begun with a 1-mg dose and gradually increased until approximately 1 to 1.5 mg/kg body weight was achieved. This dose was modified according to the patient's subjective symptoms and renal tolerance. Amphotericin B was reserved for use intrathecally only in those patients who had relapsed, failed to respond to intravenous treatment, or did not tolerate the intravenous route.

Courtesy of References and Reviews
Journal of the American Medical Association

Spickard, A., Butler, W., Andriole, V., and Utz, J. Ann Intern Med 58:66 Jan 1963

PROPHYLACTIC ANTICOAGULATION

Over a period of 40 months (1956-1960), every second adult surgical or injured patient was treated with the oral anticoagulant, phenprocoumon (Marcumar), in order to reduce the incidence of thrombosis. At the end of this period the author was able to compare a test group of 5,867 prophylactically treated patients with a contratest group of 5,872 untreated patients. There were 24 fatal pulmonary embolisms in the contratest group, but only 4 among those being treated prophylactically with the oral anticoagulant. Autopsy studies on the 24 patients, who died from embolism without having received the anticoagulant drug prophylactically, revealed that in half of them the embolism was the only cause of death. The author concludes that, among about 6,000 patients, the lives of 10 were saved by the prophylactic use of anticoagulants. He mentions and discusses difficulties that could result from the generalized use of anticoagulants for prophylactic purposes, particularly the danger of producing serious postoperative hemorrhages by reducing the coagulability of the blood. However, the author feels that it is not justified to reject the prophylactic use of anticoagulants, because of the difficulties they may cause, and then accept a number of fatal embolisms as "unavoidable."

Courtesy of References and Reviews
Journal of the American Medical Association

Dick, W.
Chirurg 33:337 Aug. 1962

TOXICITY OF PHENACETIN

Although acetophenetidin (phenacetin) has been in use since 1887, its possible damaging effects on the kidney have been pointed out only during the last 9 yr. After briefly reviewing some of these reports, the author says that of 9 patients in whom he observed roentgenographic features of renal papillary necrosis, 4 gave a history of taking acetylsalicylic acid, acetophenetidin, and caffeine (A.P.C.) regularly for a long time. The conclusion that the abuse of acetophenetidin causes chronic nephritis is deduced from the following observations: (1) a large proportion of persons taking this drug habitually have evidence of renal damage; (2) a large percentage of patients with chronic interstitial nephritis or renal papillary necrosis give a history of prolonged ingestion of acetophenetidin; (3) the severity of the renal damage increases with the amounts of the drug that have been ingested; (4) withdrawal of the drug is followed by considerable improvement in the patient. The mechanism whereby the drug produces renal damage is uncertain. Chemical injury of the interstitial tissues, perhaps with secondary bacterial infection, seems the most plausible hypothesis. The diagnosis is difficult until renal insufficiency occurs. In the early stages, symptoms are absent or nonspecific. Treatment consists of the withdrawal of the drug and antibacterial therapy when infection is present. All patients with unexplained urinary tract infection must be questioned regarding their intake of drugs containing acetophenetidin. Conversely, patients who have disorders for which A.P.C. may be taken should be questioned about this, and if acetophenetidin has been taken, the urinary system should be studied. The author feels that acetophenetidin should be available only on prescription.

Courtesty of References and Reviews
Journal of the American Medical Association

Ross, P. Med J. Aust 2:539 Oct 6 1962

POLYNEURITIS FROM NITROFURANTOIN

Severe peripheral neuropathy has been described in a 54-yr-old male treated with nitrofurantoin for 6 weeks. Treatment had been given for resistant urinary infection superimposed on chronic azotemic pyelonephritis with blood urea of 300 mg/100 ml. Considerably raised plasma levels of nitrofurantoin were found in this and in other patients with varying degrees of uremia compared with levels in patients with normal blood urea treated with the same dose. Of the 17 cases of neuropathy due to nitrofurantoin previouly described, renal function was known to be considerably impaired in 7. It is considered that nitrofurantoin is contraindicated in the presence of uremia for 2 reasons: (1) risk of accumulation in blood of toxic levels and (2) failure to achieve therapeutic concentrations in urine.

Courtesy of References and Reviews
Journal of the American Medical Association

Loughridge, L. W. Lancet 2:1133 Dec 1 1962

In 6 patients acute polyneuritis developed during the administration of nitrofurnation. In 3 of them the drug was not withdrawn and death occurred. In the remainder gradual improvement occurred after the drug was stopped. All these patients had renal impairment at some stage during administration of the drug. The dosage varied widely. Statistical evaluation comparing the significance of dosage and renal failure with the development of polyneuritis, showed correlation only with the latter, there being no demonstrable relationship to dosage. The incidence of acute polyneuritis following the administration of the drug in patients with renal impairment was 4%. There appears to be a danger of toxic levels of nitrofurantoin accumulating in patients with renal impairment, and caution in the use of the drug under these circumstances is necessary.

Courtesy of References and Reviews
Journal of the American Medical Association

Ellis, F. G. Lancet 2:1136 Dec 1 1963

Continued



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ANDROGENIC HORMONE IN MYELOFIBROSIS

The author's experience in treating 8 patients with myelofibrosis indicated that androgenic hormones stimulate erythropoiesis and may be considered as specific therapy for myelofibrosis. It was apparent that a massive dose of an active androgen must be used for a prolonged period, a minimum of 2 months; the author used 100 mg. of testosterone 3 times a week or 20 to 40 mg/day of fluoxymesterone (Halotestin). Supplemental hematinic factors, such as iron, must be present in adequate quantities to permit development of mature red blood cells. Concomitant administration of corticosteroid hormone is necessary in some cases and seems to potentiate the effect of androgens on erythropoiesis.

The decision to try androgenic hormones in the treatment of myelofibrosis was prompted by reports of several investigators, who found that androgenic hormones stimulated erythropoiesis in patients with breast cancer and those with refractory anemia, as well as in castrated and in normal experimental animals.

Six of the 8 patients treated for myelofibrosis showed improvement. A 64-year-old man and a 55-year-old woman treated for 12 and 36 months, respectively, with testosterone propionate and a 75-year-old woman treated for 15 months with fluoxymesterone responded with increased hemoglobin, reticulocytosis, cessation of transfusion requirements, and hypercellular marrow. The improvement was maintained for 12, 18, and 24 months, respectively, while the survival time from onset of androgen therapy was 19, 54, and 58 months, respectively. Three additional women (aged 56, 67, and 62 years, respectively) showed moderate alteration in the course of the disease, with reticulocytosis in all cases, a cessation of transfusions in the first case, and a reduction in number or required transfusions in the latter 2 cases; however, the hemoglobin did not rise to normal values during the 5, 5, and 8 months, respectively, of treatment. The 2 remaining patients, who were younger (aged 41 and 37 years), showed no response, but treatment was given less than 2 months in both instances. Therapeutic levels of androgenic hormone have in some cases led to polycythemia.

Courtesy of Farley Manning Associates
New York, New York

Kennedy, B. JAMA 182:116-119 October 13 1962

COBALT AND ERYTHROPOIESIS

Albino rats were exposed to a single total body irradiation of 250 or 350 r, which doses produced moderate bone marrow damage. Postirradiation administration of cobalt chloride reactivated the erythropoiesis and prevented the animals from becoming anemic. In fact, the cobalt-treated animals became polycythemic in contrast to similarly irradiated control rats, which developed moderate anemia. The daily dose was 0.8 mg of cobalt/kg of body weight. The first injection was given 1 hr after the exposure and the treatment was continued over a period of 8 weeks. After 350 r the effect of cobalt was less rapid. Besides the erythropoietic effect, toxic symptoms were observed including loss of weight. The suggestion is made that cobalt liberates or activates erythropoietin, which in turn accelerates the formation of red cells.

Courtesy of References and Reviews
Journal of the American Medical Association

Saikkonen, J. and Marttinen, E. Blood 21:39 Jan 1963

ULCEROGENIC HORMONE

Exploring the role of the pancreas in the etiology and pathogenesis of intractable ulcer diathesis both experimentally and clinically, the authors find statistical support for the concepts (a) that non-beta islet cell tumors of the pancreas are associated with ulcer and (b) certain inflammatory diseases of the pancreas are similarly associated. Either suggests the presence of an ulcerogenic hormone capable of producing enormous gastric hypersecretion and an intractable ulcer diathesis. The report is based on a study of 132 patients. Of the 132 cases, 101 were reported in the literature; 10 from the authors' service; and 21 were described by personal communication. In 30 per cent of these, the ulcer was accompanied by severe enteritis; in 10 per cent the latter was the only symptom. Perforation of a primary jejunal ulcer just beyond the ligament of Treitz occurred thirty-six times. A quarter of the cases has polyglandular involvement including one or more glands of internal secretion. The islet cell origin of these tumors is uncertain and requires further study. The most effective management of fulminating ulcer in the presence of non-beta islet cell tumor of the pancreas remains total gastrectomy.

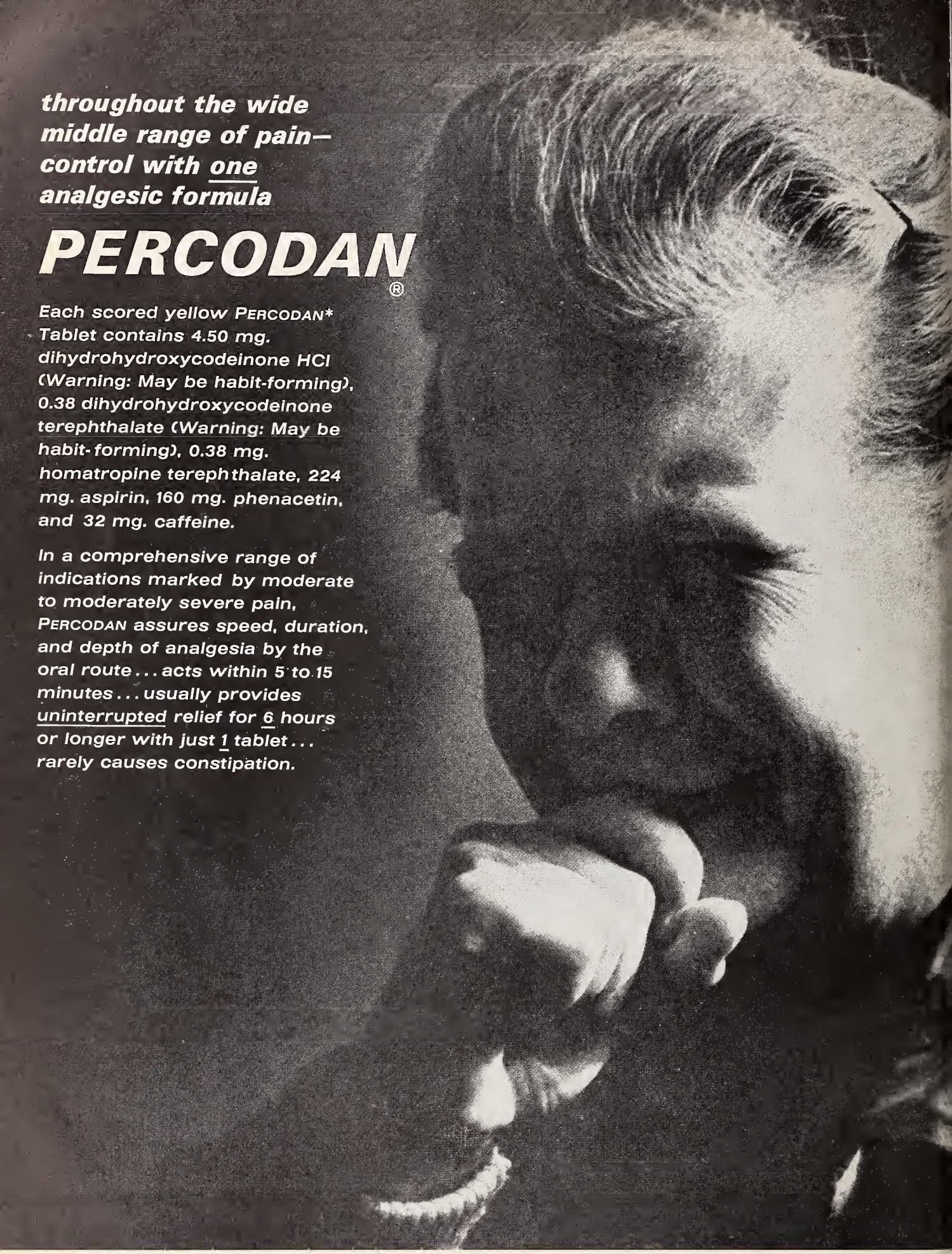
Using the Pavlov pouch of the dog, extracts of 5 non-beta tumors and 2 metastases were bioassayed. The curve of acid production was shown to be quite similar to the curve produced by the extracts of gastrin prepared from the mucosa of the antrim. The fasting blood sugar was kept normal in these experiments to avoid acid response due to hypoglycemia. The question remained as to whether or not the gastric secretagogue was present in extracts of various adenomas. Extracts from thyroid, parathyroid, adrenals, beta-cell adenomas of the pancreas, and carcinoid tumors all failed to elicit acid from the Pavlov pouch; only the non-beta islet cell extract did so.

A case history is presented illustrating ulcer in association with a chronically damaged pancreas in which there was no evidence of tumor. In this connection, the authors point out that a 15 percent incidence of ulcer in association with chronic inflammatory lesions of the pancreas has been reported. An even higher incidence of ulcer has been reported in cystic fibrosis. These clinical findings, as well as the hypersecretion following experimentally induced acinar atrophy and fibrosis, indicate presence of a gastric secretagogue in the chronically damaged pancreas, as well as in ulcerogenic tumors.

The authors advocate total gastrectomy in controlling the fulminating ulcer diathesis associated with non-beta islet cell pancreatic tumors. Reported recurrence rates for conservative treatment are high. One type of conservative treatment, local removal of the tumor, showed a recurrence rate of 60 per cent; while the recurrence rate for the other conservative approach, radical gastric resection with partial removal of pancreas, was 57 per cent.

There were no recurrences following total gastrectomy. This, they say, is consistent with the old adage: no acid, no ulcer. The mortality was similar for all 3 approaches, from 12.5 to 16 per cent. In contrast to most patients with carcinoma of the stomach, these patients do quite well. The authors cite the case of a woman who bore a 5½ pound child seven and a half years after total gastrectomy and removal of lymph nodes containing metastases on the surface of

Continued



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the pancreas. In the interim she maintained her weight above ideal.

Courtesy of Medical Abstract Service
Berwyn, Illinois

Zollinger, R., and Associates. Ann Surg 156:570-578 October 1962

SARCOIDOSIS

The author observed 296 cases of sarcoidosis for an average of 6 years. Only 204 could be regarded as "certain" cases. Thirty-five per cent of the 296 patients had an acute onset, usually with erythema nodosum. About one-third had bilateral hilar lymphomas, while the rest also had pulmonary lesions. About 25% had irreversible changes at the end of the observation period, and of these about every fourth case was a respiratory invalid. Patients with an acute onset had a better prognosis than those in whom the disease had an intermittent course and developed slowly. Less than 30% had extrapulmonary changes. Corticosteroid treatment was given to 133 patients. With one exception, there were no serious side effects. Short-term treatment is not recommended because of the danger of recurrences, and because treatment in the early stage did not prevent a chronic course of the disease; however, patients with uveitis, with sarcoidosis of the central nervous system and the myocardium, and with long-lasting hypercalcemia should be treated. In long-term treatment of pulmonary sarcoidosis the results were encouraging. The numerous cases of sarcoidosis which have been treated with corticosteroids without the occurrence of tuberculosis or some other infectious disease do not indicate that sarcoidosis is an infectious disease, but rather that it belongs to the group of "immune" diseases. Many of the patients in this study were allergic.

Courtesy of References & Reviews
The Journal of the American Medical Association

Rudberg-Roos, I.
Acta Tuberc Scand 41:1-40 Suppl. 52 1962

GASTRITIS

In an effort to correlate the clinical, gastroscopic, roentgenographic, and pathologic findings of gastritis, a review was made of the records of all cases with such a diagnosis seen at the University of Illinois Research and Educational Hospitals in the last 5 years. Patients with acute gastritis were not included in this study because roentgenograms had usually not been made, nor were those with chronic gastritis included if roentgenograms could not be located. Of the nearly 200 records reviewed, those of 50 patients met the criteria for adequate evaluation. The results of this study bear out what so many other workers have already observed — that neither roentgenology nor gastroscopy is reliable in the diagnosis of gastritis. Microscopic studies frequently disclose gastritis in clinically normal subjects. It is invariably present in conjunction with such conditions as gastric ulcer, carcinoma, and subtotal gastrectomy. Therefore, the clinical significance of this entity is doubtful, and thus far no convincing evidence of its importance has been established. Hypertrophy of the gastric mucosa is discussed and its importance is emphasized. The terms chronic or giant hypertrophic gastritis should not be used, since the condition is primarily neoplastic, not inflammatory. The localized type is clinically unimportant, except for its difficult differentiation from a malignancy. The generalized form can be associated with marked systemic signs and symptoms and in some cases may simulate a carcinoma or lymphoma.

Courtesy of References and Reviews
Journal of the American Medical Association

Berlin, L. Amer J. Roentgenol 88:627 Oct 1962

HYPERNEPHROMA

The extrarenal manifestations of hypernephroma in 34 patients and in published reports are reviewed. One patient presented with hematuria and 11 others with metastases. Presentation was not obviously metastatic in 22 patients. Eight came with fever or general weakness. Vascular disturbances in 6 included hypertension, thrombophlebitis, inferior vena caval obstruction, and varicocele. Four had gastrointestinal complaints, 1 patient had hypercalcemia, and another musculoskeletal symptoms. Two patients had neurological syndromes, one of which proved metastatic. The over-all incidence of systemic features was greater and included anemia, eosinaphilia, a leukemoid reaction, and thrombocytosis. Polycythemia, amyloidosis, and hyponatremia were not seen. Urographic procedures were performed in half of the patients, most of whom had an abdominal mass. Calcium was visible radiologically in the tumors of 5 patients. The diagnosis was not made in 19 and was a surprise at autopsy in 10. Appreciation of the extrarenal manifestations of hypernephroma might lead to earlier diagnosis.

Courtesy of References and Reviews
Journal of the American Medical Association

Gordon D. Canad Med Assn J 88:61 Jan 12 1963

POSTGASTRECTOMY STEATORRHEA

Thirty postgastrectomy patients were studied, 15 without and 15 with steatorrhea, as determined by measurements of fecal fat and I^{131} triolein excretion. Material from the afferent loop of the gastrojejunostomy was subjected to quantitative bacterial cultures. In the patients with steatorrhea, afferent loop bacterial colony counts were consistently higher than those in patients without steatorrhea; the differences between the medians of the colony counts of patients with and without steatorrhea were statistically significant at the 0.001 level. The administration of appropriately selected antibiotics was followed by gains in weight and reductions in fat excretion in five of eight patients with steatorrhea so treated. Improvement correlated well with reductions in afferent loop bacterial counts. The data demonstrate a highly significant association between postgastrectomy steatorrhea and the development of a fecal type of resident bacterial flora in the afferent loop of the gastrojejunostomy. Other factors undoubtedly participate in the causation of steatorrhea in this group of patients and may interact with factors of stasis and bacterial flora. Preliminary measurements of pancreatic enzymes of fasting afferent loop fluid suggest a reduction in lipase activity in patients with postgastrectomy steatorrhea.

Courtesy of References and Reviws
Journal of the American Medical Association

Wirts, C., and Goldstein, F. Ann Intern Med 58:25 Jan 1963

LIDOCAINE FOR POSTOPERATIVE PAIN

The effect of giving lidocaine intravenously (1,000 mg. in 1 liter of fluid during operation) on postoperative pain was studied in 302 surgical patients who

Continued

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References: 1. A.M.A. Council on Drugs: J.A.M.A. 183:469 (Feb. 9) 1963. 2. Gruenberg, F.: Curr. Ther. Res. 2:1 (Jan.) 1960.

1783M

were matched against 302 controls. During the first three postoperative days, 8 per cent of the treated group reported either no pain or mere soreness, as against only 25 percent of the controls. Evaluated on the basis of need for narcotics, the difference was even more marked. Over the three-day postoperative period the lidocaine group got only an average of 0.8 of a dose daily while the controls got an average of 2 doses daily. In an extension of the study, 60 laparotomy patients were given an injection of 500 mg. lidocaine into the rectus muscle, in addition to the intravenous dose. Over the three day period, 94.5 per cent of these patients had no pain at all or soreness only, while narcotics demand was reduced to 0.6 of a dose per day. Other benefits attributed by the authors to lidocaine were reduction of cardiac irritability, eliminating premature beats with less danger of ventricular fibrillation; reduction of amounts of succinylcholine chloride and general anesthetics used; and control of the hypertensive effects of succinylcholine chloride. The authors caution that use of this drug demands careful observation during anesthesia, at its decrease or cessation of drip at the termination of succinylchloride therapy, and careful instruction of recovery room nurses on signs of possible cardiovascular difficulties.

The 604 patients underwent a variety of surgical procedures, chosen at random. The 302 lidocaine-treated patients were, however, matched operation-for-operation by the 302 controls. Lidocaine (Xylocaine Astra) is the hydrochloride of 2-diethylamino-2', 6'-aceto-xylidide, known also as lignocaine (B.P.) Not being a p-aminobenzoic acid derivative (like procaine and similar compounds) the use of lidocaine is not contraindicated during sulfonamide or para-aminosalicylate therapy or use of antibiotics. It has no sympathomimetic activity; it has an adrenolytic effect. It reduces cardiac irritability and apparently is nonallergenic.

The dose finally arrived at was 1,000 mg. lidocaine in 1 liter of fluid (this was done rather than distributing the dose through the total fluids given, because the latter varies from patient to patient). Given during the operation, the solution's rate of flow was individually adjusted. An additional 60 patients were given 500 mg. more of lidocaine, injected into the rectus muscle.

Pain was evaluated subjectively by having the patient state the amount of pain: soreness, 1 plus; mild pain, 2 plus; moderate, 3 plus; and severe, 4 plus. The authors realize difficulties of this kind of an assessment, but point out that pain is personal, and whether a patient over or underrates his pain he is reporting what he is experiencing. Pain was also evaluated more or less objectively on daily narcotics given, correlating this with the subjective data.

In approximately 3,000 operations, only one case of convulsions occurred: administration of lidocaine had been increased to a very rapid rate. In this case all that was required was stoppage of the drip and supplementation of 100 per cent oxygen. The convulsions subsided in a few minutes. The only other thing requiring correcting in the recovery room occasionally is hypotension. The lack of complications is attributed chiefly to careful observation of the patient. Theoretically, the complications of lidocaine are those of any local anesthetic agent: nausea, vomiting, headache, dizziness, bradycardia, hypotension, muscle twitching, and convulsions.

Courtesy of Medical Abstract Service
Berwyn, Illinois

Bartlett, Esther, and Hutaserani, Queyphon J Amer Med Wom Assn 17:809-815 October 1962

SJOGREN'S SYNDROME

The clinical records of 52 patients with Sjogren's (sicca) syndrome were reviewed, and the diagnosis in each case designated as definite, probable, or possible Sjogren's syndrome on the basis of predetermined criteria. Patients with definite Sjogren's syndrome demonstrated objective evidence of rheumatoid arthritis, keratoconjunctivitis sicca and swelling or atrophy of the salivary glands. Two of these abnormalities were required for a diagnosis of probable Sjogren's syndrome. Objective evidence of one of these abnormalities plus the presence of subjective complaints suggesting another was deemed sufficient evidence for a diagnosis of possible Sjogren's syndrome. The group studied exhibited a higher incidence of splenomegaly, Raynaud's phenomenon, and leukopenia and demonstrated more pronounced abnormalities in serum proteins than found in patients with rheumatoid arthritis alone. A wide variation in disease pattern was found in the 52 patients. Some cases presented as a variant of rheumatoid arthritis while others more closely resembled scleroderma or systemic lupus erythematosus. The latter observation suggested that Sjogren's syndrome could best be characterized as a broad spectrum of disease rather than as a discrete disease entity.

Courtesy of References and Reviews
Journal of the American Medical Association

Vanselow, N., Dodson, V., and Duff, I. Ann Intern Med 58:124 Jan 1963

MISDIAGNOSED APPENDICITIS

From an analysis of figures supplied by the General Register Office giving the number of patients discharged from hospitals with a diagnosis of appendicities in 1956 and 1957, Lee in 1961 showed that twice as many young women aged 17 years were thus diagnosed as might be expected. There was no information about the histological findings. The author, as a director of a pathological service, gained the impression that all the normal appendixes that came under his observation were from young women, and so he started in 1955 to pay particular attention to every appendix received from the operating theaters, and made an effort to obtain all of them for a period of 7 years. Only those appendixes that showed no abnormality of any kind both macroscopically and histologically were labelled as normal. Of 1,300 appendixes, 515 (39.6%) fell into this category. Recording the results by age-groups for each sex revealed a higher proportion of normals for females, and this was most marked for the age-group of 11 to 20 years. In this last group almost two-thirds of the appendixes removed were judged to be normal, whereas only a quarter of those from males of the same age-group were so judged.

Courtesy of References and Reviews
Journal of the American Medical Association

Harding, H. E. Brit Med J 2:1028 Oct 20 1962



She has her eyes on you

And her wonderful, story-telling eyes are saying that there are a great many people, a lot of them helpless youngsters, who are desperately in need of your help. Some of them are sick, some are handicapped, and many are homeless. There are puzzled teen-agers in need of a guiding hand, troubled families in need of counseling, and people who are too old to work but too young to sit around doing nothing. When you look into this little one's eyes, we hope you will get the message—from the many people whose only hope for help is the once-a-year pledge you make to your United Fund or Community Chest. **One gift works many wonders/GIVE THE UNITED WAY**

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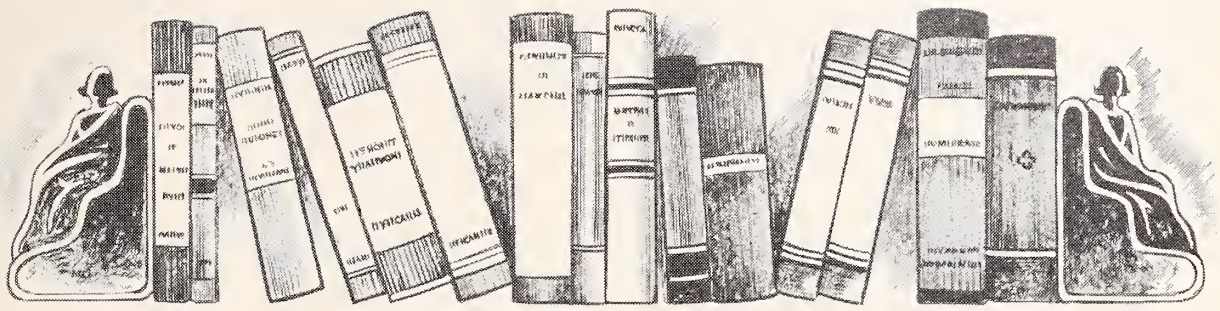
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Book Reviews

TUMORS OF THE CHEST, Thomas J. Kinsella, M.D., Charles C. Thomas Publisher, Springfield.

Dr. Kinsella has presented an excellent monograph on tumors of the chest. This represents a wide experience and knowledge in the clinical field in a group of diseases which, until the past few years, have not been well defined or classified, and in many instances have been poorly treated.

Dr. Kinsella has done an excellent work of filling this gap in the field of chest tumors.

The bibliographical references could have been advantageously placed at the end of each chapter.

The book is a credit to the author, and the publisher has done well to add this to their excellent list of monographs.

Carl O. Rice, M. D.
Minneapolis, Minn.

TEXTBOOK ON NEUROLOGY, H. Houston Merrit, M.D., Lee and Febiger, Philadelphia, 803 pp.

This is the third edition of the Textbook of Neurology. It follows the essential outline of the previous editions, detailing the various neurological diseases in typical textbook style. New developments have been added, particularly in the cerebral vascular chapter where newer concepts of circulation have made this necessary.

This textbook is well illustrated and is an excellent book for the student or for desk reference.

Bibliographical references are appended conveniently at the end of each disease, rather than at the end of the chapters, or at the end of the book.

The book is well bound and of a comfortable size for easy handling.

Carl O. Rice, M. D.
Minneapolis, Minn.

ATHEROSCLEROSIS. Mechanisms as a Guide to Prevention, Moses Campbell; Lea & Febiger, Philadelphia. 1963, 293 pages, Price $8.00.

This is a well written and informative monograph. The Author is an active investigator in the field of vascular disease and is well qualified to analyze the many factors that influence the development of atherosclerosis.

The two chapters that have most significance for physicians in practice deal with the identification of individuals susceptible to vascular catastrophe and with diet and its relationship to atherosclerosis.

The book is well printed; the illustrations are clear. The extensive bibliography (1250 references with full titles) indicate the merits of the volume as a reference source.

The book can be recommended; it explains mechanisms of atherosclerosis development, at least to the extent permitted by the fragmentary knowledge currently available.

F. W. Hoffbauer, M.D.
Minneapolis, Minn.

BILHARZIASIS, Ciba Foundation Symposium, G.E.W. Walstenholme and M. O'Connor, Editors. Little, Brown and Co., Boston, 1962, 433 pages.

The volume contains 20 papers presented at a symposium in Cairo, March, 1962. As is often the case, the discussions following t he scientific papers seem as informative and often more interesting than the formal presentations themselves. In this instance, the discussions have been carefully and apparently faithfully reproduced. They permit one to catch the spirit of the four day meeting. The participants, some 26 authoritative students of bilharziasis from all parts of the world, represented all disciplines — public health, zoology, clinical medicine, pharmacology etc.

The material in this monograph will be of most interest and value to active workers dealing with the problems of schistosomiasis who already have a background of knowledge of the disease.

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Medical Aspects of the Civil War

ELDON BERGLUND, M.D.
Minneapolis, Minn.

ONE HUNDRED years ago the Civil War thundered back and forth across this country. There have been wars since that time but to the "aficionado" of such events none of them really amounted to much. Nobody hears of a First World War Club or a Second World War Club, not to mention a Spanish-American War Club or a Korean War Club. There are Civil War Clubs, though, in most of the major cities of the United States. The fascination of people with the Civil War is hard to explain. It is not only that it was fought in this country, between neighbors and even relatives. It is not only the great and heroic figures involved in the war and the great and historic principles decided by the war. It is peculiarly interesting, I think, because of the unique nature of the armies and the people in them. These were citizen armies; the men were not mere serial numbers, grouped into companies and divisions, but three-dimensional, articulate, interesting personalities. In the Civil War armies the men often could and did elect their officers. They could and did express their opinions without censorship in their correspondence. They had poor discipline but wonderful esprit de corps. They might be rude to their officers in camp, and yet at the next battle charge again and again in hopeless attacks, as at Fredricksburg, Gettysburg, Antietam, and Cold Harbor.

The material presented here is focused around individuals, as a frame of reference to the aggregates of wounds, diseases, and deaths, and is taken almost entirely from the six-volume Medical and Surgical History of the War of the Rebellion. This massive work was published by the Surgeon General's Office, with the first volumes published in 1870. It is concerned exclusively with the Union Army.

Continued

It must be remembered that as we speak of wounds we are considering only the wounds which were not immediately fatal. The soldier had to survive long enough to get to some point where he could be examined, classified, and entered in the records. Those killed in action were not tabulated according to wounds received.

We must also remember the state of development of medicine in general at the time of the Civil War. It was extremely crude. The bacterial theory of disease was not yet known. Antisepsis was only dimly understood. There were no antibiotics, sulfas, or much of anything else that had a specific effect on disease. Blood transfusions could not be given. Surgery was almost limited to amputations. Chloroform, ether, and morphine were available to relieve pain, but even so, 264 were performed without them because the surgeon was unfamiliar with their use or could not obtain them. The doctors themselves had none of the uniformity of training which is now accepted as a matter of course. Diploma factories were the main source of the supply of doctors. In short, the medical care during the Civil War was terrible if judged by present standards.

As an introduction to the problems of the wounded, I will present excerpts from the report of Surgeon Brinton at the Battle of Shiloh:

"The labors of the medical officers during the Battle of Shiloh and subsequently were most arduous and were effected under every disadvantage. The capture of the Camp had stripped the regimental officers of all their medical supplies and instruments, which were carried off by the enemy in their retreat. The stores which had been forwarded from St. Louis had not yet arrived. The number of medical officers was scanty and very many of them who had remained at their posts in local hospitals had been captured during the Sunday fight. Under such circumstances the medical director of General Grant's army, Surgeon H. S. Hewit was called upon to provide for wounded as numerous as those of Waterloo. This was done in a wilderness, there were no cities or towns available. The only building on the field which could be taken for a hospital was a single log hut, 15′ x 30′ near the landing. The removal of the wounded was a matter of great difficulty. In the early capture of the camps the wagon and stretchers were lost and the wounded could not be removed to the rear. Indeed, during the battle and for two days afterward men could not be spared from the ranks to move the wounded. The mass of the wounded in Sunday's fight who received the attention of surgeons had dragged themselves as best they might, to the high bluffs between the middle and hospital landing. A limited amount of hay had been obtained from the transports and this, littered on the earth, served as a bed for those most grievously hurt. All other lay on the soaked ground. To feed the sufferers, bullock were killed and soups prepared with great difficulty, for neither cooking utensils nor hospital furniture could be obtained. The weather was terrible, the rain incessant and the mud almost knee deep. To add to the terrors of the situation, it must be stated that even the plateau occupied by the wounded had become a thoroughfare and was swept by the retreating masses of our troops, many of whom, a panic stricken mob, sought the shelter of the cliffs to escape the fire of the enemy. On the afternoon of the Sunday's action the shot of the enemy fell freely among the writhing masses of the wounded whose further removal or protection was impossible.

As has already been remarked, the supplies of medicines and hospital stores were most scanty. The sufferings of the wounded when carried to the rear were necessarily much aggravated by the existing destitution. Things will perhaps be partially appreciated if the reader will imagine thousands of human beings who had been wounded and lacerated in every conceivable manner, on the ground, under a pelting rain, without shelter, with very little food. The circumstances attending the battle of Shiloh were fearful, and the agonies of the wounded were beyond all description. They were moreover fearfully increased by the dearth of those nourishments and stimulants so essential to relieve the shock of injury. The difficulty, at all events, so far as the army of Tennessee was concerned, lay in the absence of supplies. This contingency had been foreseen and strenuous efforts had been made by the medical director to anticipate it. Requisition following requisition had been made for the new stores, medicines and hospital tents, the want of which proved so disasterous upon the fifth and seventh of April. Unfortunately, at this time, the medical department of

the United States Army had not yet freed itself from that system of blind routine, which, serving well the wants of a small army in peace time, yet failed utterly to meet the necessities of a gigantic war.

As has been observed by Surgeon Murray in his report of the battle, a large proportion of our wounded were hit in the lower extremities. The killed were shot mostly through the head and abdomen. The death of General A. Sidney Johnston, commanding the enemy, probably resulted from hemorrhage. It is stated in the dispatch of Colonel Preston, who had his body in charge, that he received a wound from a minie ball which cut the popliteal artery but he rode on, until from loss of blood he fell exhausted and died without pain in a few minutes.

Very few bayonet or sabre wounds presented themselves, a remarkable fact in an action of this magnitude and in which the forces engaged were at such close quarters."

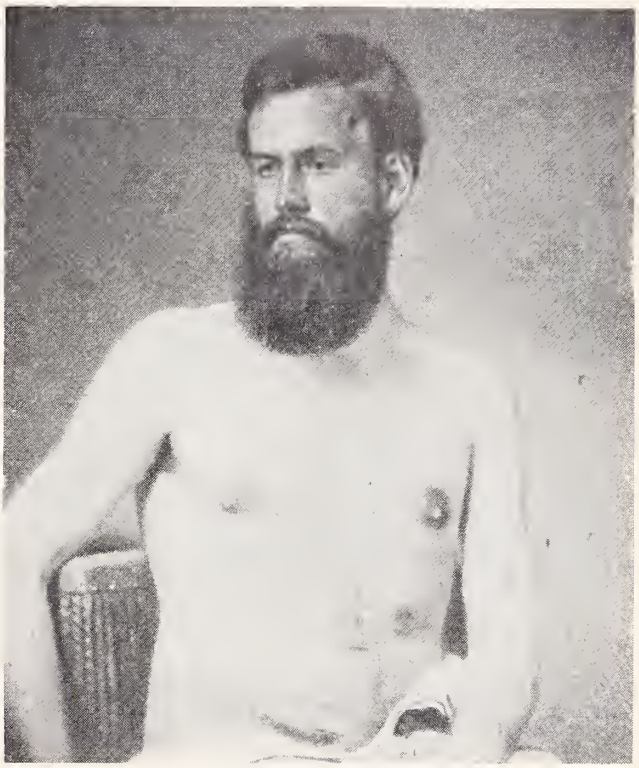


Fig. 1 Pvt. Ed. D. Bemis

Case Histories

To give you some idea of the nature of the wounds, the treatment and the results, I have chosen to present some individuals and their medical histories, as well as some tables of statistics. The individuals must be considered medical heroes, if no other kind, because they lived despite their wounds, and that was a real accomplishment in those days. As you will see, they were by no means typical; the typical ones more often died.

Case 1.

Pvt. Ed. D. Bemis. Co. K., 12th Mass. Vols. (Fig. 1) He was wounded at Antietam by a musket ball which fractured the shaft of his left humerus. Fracture united kindly with one quarter inch shortening. He was promoted to Corporal. On May 6th, 1864, Bemis received at the Battle of the Wilderness, a wound from a musket ball in the right iliac fossae. There was extensive sloughing about the wound but it eventually healed. Eight months after the injury he returned to duty with his regiment. On February 5th, 1865 he was again severely wounded at Hatchers Run, near Petersburg. A ball entered a little outside of the left frontal protuberance, passed backward and upward and removed a piece of the temporal bone, with brain substance and membranes. When he entered the hospital, brain matter was oozing from the wound. A badly-battered musket ball was subsequently removed from the left hemisphere. He was totally insensible and the right side was paralyzed. Water dressings and sponges were applied to the wound. About February 18th, he improved remarkably. By March 18th the wound was healed. He recovered completely, suffering only at times from dizziness in the hot sun. He applied for a pension in July 1865 and the picture was taken at that time. The wound had healed except for a slight discharge of "healthly" pus from one point. His mental and sensory faculties were unimpaired, he was pensioned at eight dollars a month.

Case 2.

Pvt. Patrick Hughes, Co. K., 4th New York Vols. Age 23. (Fig. 2) He was wounded at the battle of Antietam, September 17 1862 in Sumner's attack on the right, near Dunker's Chapel. The injury was a perforation of the skull by a single conoidal musket ball, entering near the inner posterior angle of the right parietal and emerging at a higher point of the left parietal, making, after traversing part of the brain, a large exit wound. He dragged himself from the field and was sent to Hagerstown and subsequently to the Mount Pleasant Hospital in Washington on Sept. 24th. His general condition was good; his mind was clear; there was no inflammation of the membranes. He occasionally complained of giddiness. The wound gradually healed leaving a one-inch protuberance of the brain, which eventually became level with the scalp. Treatment consisted of cutting the hair short, applying a cold water dressing. paying strict attention to diet and administering a cathartic as often as it seemed indicated. By December he walked about the wards. This picture was drawn shortly before discharge on Jan. 26, 1863. He was pensioned at four dollars per month, this was later increased to eight dollars per month. In 1869 the doctor examining him for his pension reported that there was a skull defect 2" x 3" through which could be seen the pulsations of the brain. He worked as a puddler in an iron foundry. His memory was quite good, but not as good as before the injury. He is restless, bothered and confused and more irritable than formerly. The sight of his right eye is poor. Whiskey affects him as usual. His sexual power is undiminished. He has no paralysis. When he coughed or changed position he held his hand over the skull defect. All the doctors who saw him agreed that he was a most interesting case and one of value in throwing light upon the probable anatomy of the optic commisure.

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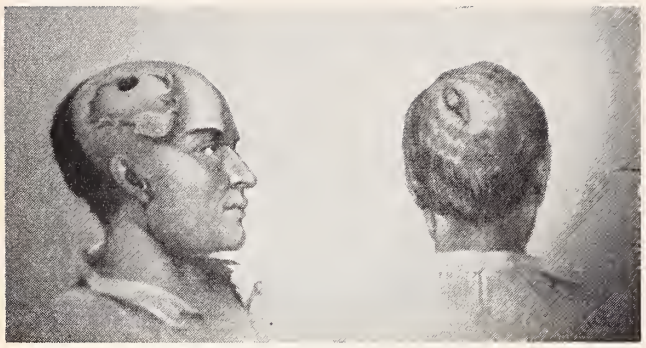


Fig. 2 Pvt. Patrick Hughes

TABLE I—Nature of Missile in 4002 Scalp Wounds

Conoidal Musket Ball	2,612
Round Musket Ball	384
Explosive Musket Ball	2
Buck Shot	94
Pistol Ball	25
Solid Cannon Ball	3
Shell Fragments	861
Grape Shot	9
Other	12
Total	4,002

TABLE II—Results of all injuries of the cranium. 12,980 Head Injuries.

Wound	Cases	Deaths
Gunshot scalp wounds	7,739	162
Other scalp wounds	659	22
Gunshot Skull Fracture	3,992	2,440
Other Skull Fractures	111	62
Smash	9	9
Total	12,980	2,774

Case 3.

Charles D. Betts, Co. I, 26th N.J. Vols., Age 23. (Fig. 3) He was struck by a 3 oz. grapeshot on the morning of May 3rd, 1863 in a charge upon the heights of Fredricksburg. The ball comminuted the sternum. It remained in the wound and was removed by the patient. He entered the hospital the following day. Through the wound, tne arch of the aorta could be seen and its pulsations counted. The left lung was collapsed. He ultimately recovered. In 1872 he wrote in response to an inquiry that "my wound has a kind of dry scab on it which keeps forming and coming off. The doctors say it will always do that. My left lung is delicate and the least cold seems to go right into it, but I suppose there is no use crying over spilt milk, but must only try to make the best of a bad job."



Fig. 3 Pvt. Charles D. Betts

Case 4.

Capt. Robert C. Co. A, 29th N.Y. Vols. (Fig. 4) He was wounded at Chancellorsville May 2nd, 1863. A round musket ball, fired from a distance of 150 yards entered below the 8th rib on the left side, passed through the diaphragm and entered the alimentary canal. Captain C. walked a mile and one half to the rear and entered a field hospital. There the surgeons found protruding through the wound a portion of the lung, the size of a small orange. They were unable to reduce this, even after



Fig. 4 Capt. Robert C.

enlarging the wound. On May 3rd, the field hospital came under fire so Captain C. walked to the rear another one-half mile where he was placed in an ambulance and taken across the Rappahanock at United States ford. Fruitless attempts again were made to reduce the protruding lung and finally a ligature was tied about the base of the protrusion and tightened. He subsequently entered the base hospital of the 2nd division of the eleventh corps. A portion of the lung separated, leaving a clean granulated wound beneath. On May 7th the musket ball was voided at stool. On May 8th the patient was visited by Surgeon Brevton who found him walking about the ward, smoking a cigar. There was an entire absence of constitutional symptoms. On May 10th, the drawing was made. Sixty days later the wound had healed except for a slight hernia of the lung. He was subsequently pensioned. On May 4th, 1867, four years later, the tumor suddenly enlarged to a length of 5 inches and a diameter of 4⅛ inches. The patient was having trouble eating, especially meat. It was apparent that a portion of the stomach had escaped through the diaphragm and through the wound in the chest. Both stomach and lungs were now in the wound and could not be replaced. This was still the case in 1872 when the last report from his family doctor was received. However, the doctor said the patient had no pain and, except for being unable to lift any great weight or to lie on the left side, enjoyed good health.

TABLE III—Wounds and Injuries of the Chest.

Wound	Cases	Deaths	Mort.
Sabre	9	1	11.1
Bayonet	29	9	33.3
Incised	27	8	29.6
Punctured	6	4	66.6
Contusions	225	5	2.2
Rib Fracture	47	4	10.5
Gunshot Fill	549	113	20.0
Gunshot Penetrating	8,715	5,260	62.5
Total	20,607	5,404	27.5

Case 5.

Sgt. Louis Morill, Co. D. 119 N.Y., age 19. (Fig. 5) He was wounded July 1, 1863 in the assault on the line of the 11th Corps at Gettysberg. His first wound was from a small ball which lodged in the globe of the left eye. The second, inflicted an instant afterward by a musket ball which entered 4 inches to the right of the umbilicus, passed through the body and emerged in the back. He was in the act of reloading at the time, fell unconscious but awoke temporarily, during which time he was struck in the left thigh by a musket ball. He remained in the field until the morning of July 4th. At that time he was taken to a farm house, his wounds were dressed and he drank a little gruel, portions of which escaped through the wound in his back almost as soon as he drank it. The anterior abdominal wound healed but the posterior wound kept closing and opening until as late as 1866.

The following quote is from Sir Charles Bell, an English Army Surgeon: "Wounds of the abdomen are common enough immediately after a battle, bearing a fair relative proportion to other wounds, yet a few days suffice to remove them so that by the end of the first week, there is scarcely one to be seen."

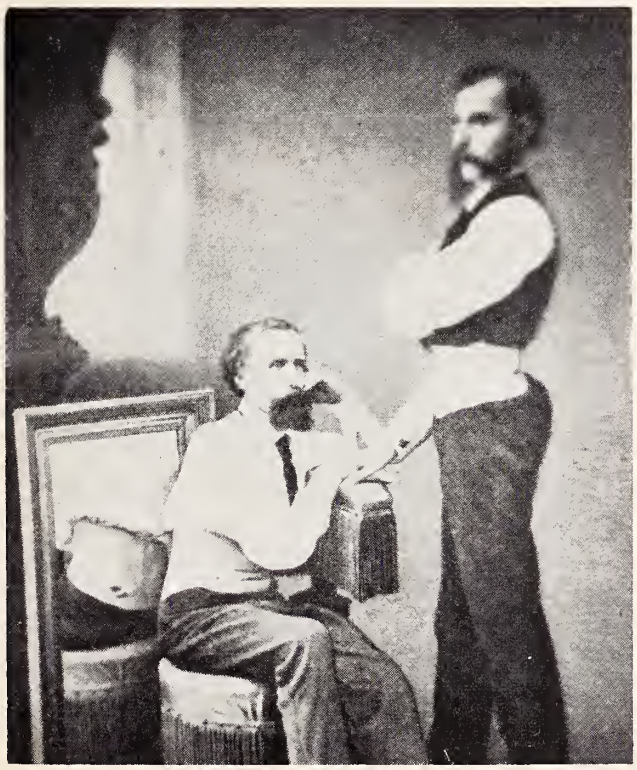


Fig. 5 Sgt. Louis Morill

Table IV—Penetrating Wounds of the Abdomen.

	Cases	Deaths	Mort.
Viscera (?)	32	11	33.7
Known Injury to:			
Viscera	2,599	2,295	88.7
Stomach	79	60	75.9
Intestine	653	484	80.3
Liver	173	108	63.5
Spleen	29	27	93.1
Pancreas	5	4	80.0
Kidney	78	51	66.2
Total	3,717	3,031	87.2



Fig. 6 Pvt. Milton E. Wallin

Case 6.

Pvt. Milton E. Wallin, Co. C, 1st Kentucky Cavalry, (Fig. 6) Age 41. He was taken prisoner at Cumberland Fever, Jan. 1, 1863 and while in prison at Richmond was shot by one of the guards The minnie ball entered the upper part of the right forearm. An amputation above the elbow was performed the same day. Shortly after, the stum bow was performed the same day. Shortly after, the stump commenced to take an unhealthy aspect and four days later, on August 24, the entire stump was attacked by hospital gangrene, the flaps became rapidly disorganized and the bone protruded. The treatment was limited to strictest attention to hygienic measures with an allowance of an abundance of the invigorating salt air from the bay (sketch made at this time). For a few days afterward the stump was dressed with charcoal and yeast poultices and a generous diet of ample allowance of ale and other stimulants was allowed. By August 30, 1863 the sloughing process was arrested and from this date the patient steadily improved. In October he was furloughed from the hospital and was reported as having deserted from furlough April 5, 1864.

Case 7.

Lt. Col. James C. Strong, 38th New York. (Fig. 7) He was wounded at the battle of Williamsburg, May 5, 1862, by a conoidal musket ball which entered the right thigh in front, a little below the groin and made its exit through the buttock. He was eventually transferred to Fort Monroe and then to his home in Buffalo. For ten weeks there was profuse suppuration with pain, chills and prostration after which gradual amendment took place. He was hospitalized at the officer's hospital at Cosmoss Wood where splinters of bone were worked from the wound and the leg was placed in extension with weight. By June 1, 1863 the wounds were nearly closed and he regained his regiment on crutches and was mustered out with his regiment on June 22, 1863. By 1875 the limb was shortened by five inches and there was progressive atrophy of the muscles. In 1877 he claimed that if his foot or ankle was twisted, he suffered sudden pain running up the limb and spine causing convulsive action lasting one to four hours, followed by confinement to the house for two or three days. The examiner stated they are of the opinion that the present degree of his disability does not require the constant attendance of another person or entitle him to an increase. The pensioner's brother and his wife certify that since his injury he does require the attendance of another person, etc., etc. (It is evident the Veterans Administration had its troubles at that time, too.)

Continued



Fig. 7 Col. James C. Strong

TABLE V—Amputation at Hip Joint.

Amputation	Cases	Death	Mort.
Primary	25	22	88.0
Intermediary	23	23	100.0
Secondary	9	7	77.7
Reamputation	9	3	33.3
Total	66	55	83.3

Case..8.

Gunshot Fracture of the Femur. Pvt. J. Dursar, 69th N.Y. and Pvt. N. Burns, 28th Mass. (Fig. 8) Both were wounded at Hatchers Run March 25, 1865 with minie balls in the thigh. They both made practically uneventful recoveries after being treated with extension. Pvt. Burns was discharged and pensioned but subsequently re-enlisted in the 43rd Inft. in August 21, 1867 and discharged in 1869.

TABLE VI—Conservative Treatment, Shot Fractures of the Thigh.

Conservative Treatment	Cases	Deaths	Mortality
Shot Fracture—Femur	2,839	1,426	51.1
Amputation Treatment	**Cases**	**Deaths**	**Mortality**
Shot Injury—Thigh	6,127	3,293	53.7

TABLE VII—Shot Fracures of Bones of Legs. Amputation of Other Wars.

Shot Fractures— Lower Leg—	Cases	Deaths	Mortality
Conservative Treatment	3,938	528	13.8
Amputation in the leg	3,728	1,215	34.0
Amputation in the Thigh	788	441	56.1
Other Wars:			
Franco-German, Crim.	7,637	5,199	73.8

Case 9.

Laceration of Right Leg by Solid Shot. Pvt. D. Jerman, Co. F., 150th Penn. Age 23. Wounded before Petersburg July 11, 1864. Amputation was performed. The patient lived until 1880.

TABLE VIII—Summary 60,000 Shot Fractures of Extremities

Upper Extremities	Cases	Fatal	Mortality
Treatment:			
Conservative	12,924	1,288	9.9
Excision	3,302	858	23.8
Amputation	14,361	1,822	12.6
Totals	30,587	3,968	12.8
Lower Extremities			
Treatment:			
Conservative	12,482	3,274	26.2
Excision	794	355	44.7
Amputation	13,063	5,264	40.2
Totals	26,339	8,893	33.7

TABLE IX—Sabre and Bayonet Wounds and Shot Wounds of Various Wars

Occasion	Total	S&B	Shot
Eng. Crimean	10,129	158	9,971
Fr. Crimean	26,811	818	25,993
Fr. Italian	15,966	565	15,401
Aust-Verona	18,521	543	19,978
Franco-Prus. (1870)	54,268	786	53,482
Totals	142,420	3,485	138,935

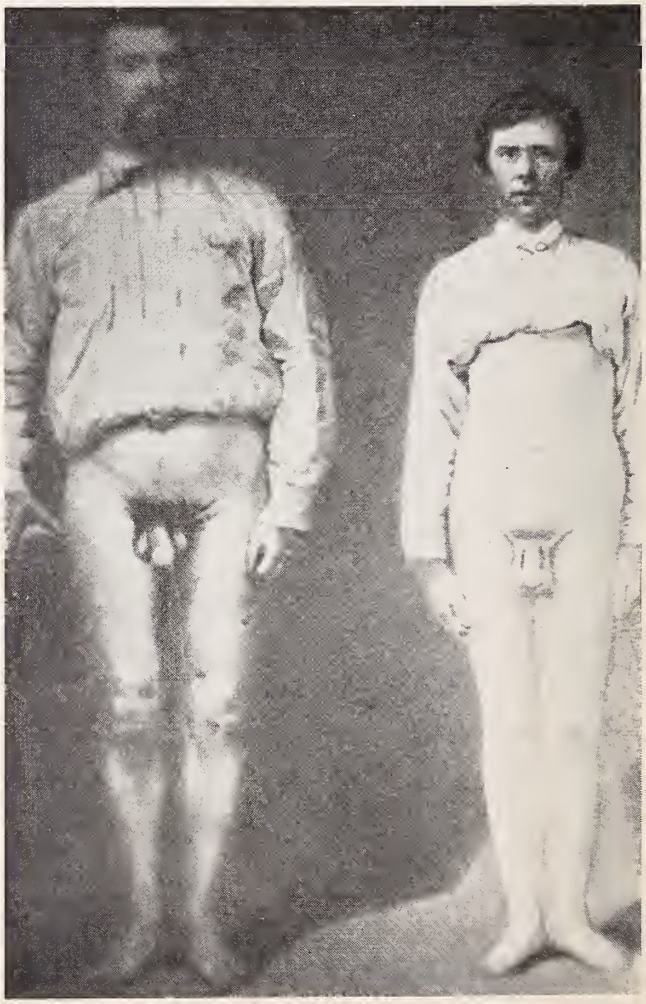


Fig. 8 Pvt. J. Dursar and Pvt. N. Burns

TABLE X—Sabre and Bayonet Wounds Civil War

Part Injured	Cases	Deaths
Head and Neck	428	29
Chest	38	10
Abdomen	35	7
Extremities	347	7
Other	74	3
Total	922	56
Mortality	6.0	

TABLE XI—Shot Wounds Civil War.
Wounds and Deaths June 1861—July 1866

Wound	Cases	Deaths
Gunshot	230,018	32,907
Incised	22,778	199
Lacerated	14,740	460
Punctured	5,639	211

TABLE XII—Type of Projectile in Shot Wounds

Solid Shot	359
Fragments of Shell	12,580
Grape, Canister, Etc.	1,153
Conoidal Ball	108,049
Round Musket Ball	16,742
Pistol or Buck Shot	3,008
Explosive Musket Ball	130
Not Ascertained	603,829
Total	245,790

TABLE XIII—Aggregates of Injuries

	Cases	Deaths
Burns	10,100	98
Contusions	46,972	172
Brain Conc.	922	215
Brain Comp.	61	17
Drowning		797
Sprains	42,704	
Dislocations	3,016	10
Fractures	7,004	526
Gunshot	235,585	33,653
Incised	22,769	189
Lacerations	14,748	467
Puncture	5,784	199
Poisoning	3,154	110
Other	15,273	1,075
Total	408,072	37,531

TABLE IV—Diseases and Deaths June 1862—July 1866

Disease	Cases	Deaths
Typroid Fever	75,368	27,056
Other Fevers—Typhus, Yellow	1,225,000	13,000
Diarrhea, Dysentery	1,550,000	37,000
Smallpox	12,236	4,717
Measles	67,763	4,246
Tuberculosis	20,000	5,500
Meningitis	3,500	2,235
Pneumonia	61,202	14,738

TABLE XV—Total Deaths 1861-1865—Union Army.

Reg.	Wh. Vol.	Col. Vol.	Total
	Killed in Battle		
1,355	41,369	1,514	44,238
	Died—Wounds and Injuries		
1,174	46,271	1,760	49,205
	Suicides, Murders, Excecutions		
27	442	57	526
	Died of Diseases		
3,009	153,995	29,212	186,216
	Unknown Causes		
159	23,188	837	24,184
Total 5,724	265,265	33,380	304,369

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Editor's Comments:

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Child Psychiatry in Minnesota

CARL P. MALMQUIST, M.D.*
Minneapolis, Minnesota

THE HISTORICAL development of child psychiatry in Minnesota can be accurately appraised only with the perspective obtained from a general view of its evolution as a separate discipline. Although the behavioral problems of children are certainly not new, the emergence of a subspecialty devoted to these difficulties is a product of the twentieth century, and more particularly of recent decades. Though Kanner believes that the most rudimentary beginnings in the field of child psychiatry can be detected in the second half of the eighteenth century, at the turn of the present century there was nothing that might properly be regarded as child psychiatry.[1] Perhaps the cultural setting for this emphasis on children was not conducive to the specialty until this century could utilize the fruits of previous centuries of progress in other fields; the progressive emancipation from political and theological absolutism, the new gospel of the rights of man, and the movements preceding and following the French and American Revolutions.

The Beginning of Child Psychiatry

In the nineteenth century far more emphasis was placed on mental defect in children than on behavioral problems; children were regarded as miniature adults to be dealt with by psychiatrists trained in the field of adult psychiatry. An insight into the times can be had when it is noted that in the first 45 volumes of the *American Journal of Insanity* (later the *American Journal of Psychiatry*), up to 1889, not a single article appeared with any reference to children.[2] Custodial care for the mentally subnormal children in the United States appears to have been the only psychiatric work done until 1891, when Dr. Walter E. Fernald expanded his clinic in Massachusetts to include children with emotional disorders as well as mental defects. The emergence of the field of child psychiatry was initiated later by expansion in the fields of child development and psychoanalysis, coupled with increasing concern about delinquency.

In the first decade of this century the introduction of psychometry, the advent of a dynamic psychiatry, juvenile courts, and the mental hygiene movement were significant. In the second decade juvenile court probation, foster-home placement, and special education for individualized instruction were the major advances. From 1920 to 1930 child guidance clinics were established with emphasis on detecting children with emotional problems, and the institution of visiting teachers. The fourth decade witnessed increased emphasis on the child himself, aside from merely arranging placement in a more comfortable home or school environment. There was also increased emphasis on teaching dynamic psychiatry in schools of social work, and in some medical schools and teachers' colleges.

Public Interest in Mental Health

The establishment of the National Institute of Mental Health in 1949 subsequent to the National Mental Health Act of 1946, which supplied adequate funds for research and training, was probably the greatest achievement, representing public desire that something be done about the mental health of children and adults.

*Dept. of Psychiatry, Minneapolis General Hospital



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The Family Unit

New psychotherapeutic techniques focusing on the family and family-centered therapy show a progressive pattern. Formerly parents were excluded from participation in the therapeutic procedure, because the child was believed to be a victim of their conscious or unconscious malevolence. But now therapy has moved from the initial exclusion of relatives to their inclusion; it has shifted to viewing the interrelationship of the child with his parents and others, and has recently evolved into "global treatment", dealing with the family as a unit. Furthermore, the trend seems to be not only towards involvement of the family as a unit, but also towards social psychiatry. Emphasis on the epidemiology of children's behavior problems and preventive psychiatry, research into psychosomatic manifestations, and biochemical investigations with increased diagnostic specificity for varieties of mental subnormality and cerebral injury, and applications of psychopharmacology are also new challenging areas.

Literature in the Field

Traditional psychiatry offered almost nothing that would help in understanding or treating emotionally disturbed children. Kraepelin's standard textbooks of psychiatry and Bleuler's classic had nothing to say about the psychopathology of childhood. A few pediatricians had begun making attempts to deal with the "feelings" aspect of their patients, in texts such as B. K. Rachford's *Neurotic Disorders of Childhood* (1905) and H. C. Cameron's *The Nervous Child* (1919). Ziehen's *Treatise on Mental Diseases of Childhood* (1926) was a restatement of adult psychiatry imposed on the pediatric age group. However, in the very same year August Homburger at Heidelberg published *The Psychopathology of Childhood*, an attempt at synthesizing the various contributions in the field; at the time it went unnoticed and has never been translated into English. In 1935 Kanner published the first general textbook of child psychiatry in the United States.

The Diverse Personnel

The cross-disciplinary nature of the twentieth century contributions to child psychiatry was becoming evident; this feature resulted in the medical professional being gradually coerced into taking a more active role in dealing with the psychiatric problems of children. It is difficult to think of a field today in which more diverse personnel have become involved; varying from the child psychiatrist with his medical and psychiatric training, to child psychologists, psychiatric social workers, welfare workers, school social workers, educationalists of all varieties, probation officers, juvenile court personnel, correctional workers, recreational groups, many of these foreign to the field of adult psychiatry.

Child Guidance Movement

The child guidance movement was based on the postulate that behavior problems in childhood arise from a variety of causes and demand a variety of techniques for their solution. The child guidance clinics originated with people interested in juvenile delinquency; thus the Juvenile Psychopathic Institute (after 1917 the Institute of Juvenile Research) was established in 1909 at Chicago with Dr. William Healy as director. In 1917 Dr. Healy and Dr. Augusta Bronner, were invited to Boston to head the Judge Baker Foundation, the forerunner of the later child guidance clinics. In 1920 the Commonwealth Fund, then two years old, obtained advice from the National Committee for Mental Hygiene, resulting in a program beginning in 1921, which was to last five years and deal with methods for the prevention of delinquency. Another goal was the promotion of training programs for young physicians in child psychiatry on Commonwealth Fund Fellowships, which continued until after the Second World War, when training stipends were established by the U. S. Public Health Service via the National Mental Health Act. At that time a series of "demonstration clinics" in large cities were organized in the hope that this would lead to permanent clinics.

One of these demonstration clinics, established to serve Minneapolis and St. Paul jointly, was located at the University of Minnesota in 1923. Its director was Dr. Lawson J. Lowrey, later to become a national leader in the field of mental hygiene and orthopsychiatry. Although

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Ridenour states that the only clinic which failed was that at Norfolk, Virginia, the clinic at Minnesota also failed when the state legislature failed to renew a request for funds after 1925.[3] This demonstration clinic, however, served a useful purpose, as two child guidance centers opened subsequently in the Twin Cities. A personal communication from Dr. George S. Stevenson, retired director of the National Association for Mental Health, states that in the second decade of this century Minnesota had a national and international reputation for work done with the mentally retarded and with children in need of "correction." As an Assistant Professor of Psychiatry at the University of Minnesota in 1923-24, Dr. Stevenson spent four days a month going to Duluth and Mankato as a "traveling clinic." By 1932, 27 cities had full time clinic services; 232 whole and part time clinics were known to the National Committee for Mental Hygiene throughout the country.

Orthopsychiatric Association

From the child guidance clinics two related professional organizations developed. The American Orthopsychiatric Association was founded in 1924, following a letter in December, 1923, by Dr. Karl Menninger to 26 psychiatrists, requesting their participation in forming an organization representing the neuropsychiatric or medical view of crime. In October, 1930, the *American Journal of Orthopsychiatry* appeared with Dr. Lawson J. Lowrey as editor, a publication that was to be a vital media for ideas on mental hygiene and preventive psychiatry. The Association is cross-disciplinary, although the vast majority of the group are social workers, psychologists, and psychiatrists. In fact this trio of professions is sometimes criticised as defenders of the present status quo, with other disciplines excluded. Some critics have felt that the community clinic approach which seemed so novel just three decades ago has already become resistant to modification in the face of changing clinical demands made on it at the present time. Other criticisms are that the clinics have become estranged from medicine, that they have set admission age levels beyond the years of early childhood without need to do so, and that they regard the problems of subnormal children as outside their realm.

Psychiatric Clinics Association

The American Association of Psychiatric Clinics for Children was established in 1948 as parent for the various clinics throughout the country in setting standards for approval regarding training facilities and quality of services rendered. Its predecessor was the Division on Community Clinics, a part of the National Committee for Mental Hygiene, which supervised the development of new clinical programs and arranged for those interested to get further training in the clinics. Since the establishment of the subspecialty Board by the American Board of Psychiatry and Neurology there has been a distinction between training which satisfies Board certification and that which has also been approved by the American Association of Psychiatric Clinics for Children. Some believe that only training which meets the latter's requirements in a setting with clinical psychology and social casework procedures can establish competence to work within a collaborative team setting.[4] The Board, however has specifically avoided setting such limitations upon training which is acceptable for becoming certified as a child psychiatrist.

The shortage of child psychiatrists is striking. Although the prestige within professional circles is high and continues to grow, there does not appear to be an increase in the numbers of practicing child psychiatrists. In March, 1959, the American Board of Psychiatry and Neurology gave child psychiatry the status of a subspecialty and established certification procedures.[5] This was accomplished after hesitant and cautious recognition by the American Psychiatric Association, which only as recently as 1943 permitted a "Section on the Psychopathology of Childhood" to be organized, later changed to a "Section on Child Psychiatry." In 1953 the American Academy of Child Psychiatry was founded, which began publishing its own journal in 1962, *The Journal of the American Academy of Child Psychiatry*. In 1957 the American Association of Residential Treatment Centers for Children was also developed with respect to the problems of children needing institutionalization.

Child Psychiatrists

Despite these organizational advancements, only about one hundred child psychiatrists are being produced annually throughout the entire country. Thus, not only is there a deficit of practitioners, but teachers to instruct in this new subspecialty and motivate others to enter the field are sadly lacking. This lack may be due in part to the early isolation of the child guidance clinics from affiliation with medical and teaching centers, whose facilities could have been profitably used for teaching and training purposes. There have also been other handicaps that have slowed expansion in the field, such as the confusion until recently as to whether child psychiatry was a branch of pediatrics or psychiatry, or whether it was actually an entirely separate discipline, more closely affiliated with social work, psychology, and education.

The fact that many child psychiatrists eventually see more and more adult patients and abandon the field of child psychiatry is well known. It would appear that the field of child psychiatry is more nebulous to work in than other medical specialties, due to its lack of definite boundaries. In a great number of cases the practitioner is not just a child psychiatrist but a family psychiatrist with several disturbed patients, who may run the gamut of all the adult psychiatric disorders. The responsibility may also extend into the area of social psychiatry, because of necessary contacts with community agencies and the preventive aspects which are implicit in child psychiatry. However, despite increasing community demands for child psychiatric services, many programs for and about children are organized without any participation by child psychiatrists.[6]

Child Guidance Clinic

Even prior to the demonstration clinics, notice had been taken of emotionally disturbed children at the University of Minnesota Hospitals. In 1914-15 a course in the Division of Pediatrics was offered entitled, "Nervous Diseases of Children," which was described as a study of functional nervous disorders of childhood with the observation and practice of electrical reactions in normal and abnormal children. In 1917 a "Psychologic and Psychiatric Clinic" was developed by a joint committee from the Medical School and the College of Education, which functioned in the examination of mental and physical states of retarded or subnormal children of the state.[7] The summer of 1926 saw Dr. Smiley Blanton teaching a course at the University of Minnesota on "Behavior Problems in Children," which dealt with the "emotional life of the child, primitive impulses, methods of socializing, the unconscious mind, and mental mechanisms determining behavior." However, this course was not taught in the medical school but in the College of Education. It was almost two decades before such courses were taught routinely under medical auspices.

During the period of the demonstration clinic and previously there had been discussions among community leaders about the permanent establishment of child guidance facilities in the Twin Cities. In 1922 Mildred Scoville from the Commonwealth Fund had spoken to the Minneapolis Board of Education about this matter; Mr. Charles Spencer, executive secretary of the Wilder Foundation at that time, had also become interested. As a result two child guidance centers, were established, one in St. Paul and one in Minneapolis, which continued even though University operation ceased.

Wilder Child Guidance Clinic

The Amherst Wilder Child Guidance Clinic was established in St. Paul in 1924, when the Wilder Board agreed to conduct a community clinic to continue the program that had been previously demonstrated at the University. This was initially on a five-year trial basis but subsequently became permanent. Working with Dr. Lowrey in 1923 at the University demonstration clinic were Dr. Stevenson and also Dr. M. L. Stiffler, who was to become the first medical director of the Wilder Child Guidance Clinic. Following the death of Dr. Stiffler in 1931, Dr. H. S. Lippman returned to the Twin Cities where he had taken his medical training and practiced pediatrics before taking specialty work in child psychiatry and psychoanalysis in New York and Vienna. He has remained director to the present time.[8] The clinic continues to serve outpatients up to age 18 in Ramsey County on a graduated

pay scale according to means, and functions as a training center for child psychiatrists via its affiliation with the Mayo Clinic through the University of Minnesota Graduate School.

Child Study Department

Minneapolis did not fare so well, although the beginnings were promising. In 1924 the Minneapolis Board of Education voted to establish and support a Child Study Department, which actually functioned as a child guidance clinic. Its first director was Dr. Smiley Blanton, followed by Dr. Herbert E. Chamberlain, Dr. Allan Challman, and up to 1950 Dr. Harold B. Hanson. At that time there was a reorganization of the Child Study Department and a change in its operation instituted by the Minneapolis Board of Education, with the result that since that time there has been no full-time child psychiatrist on the staff and no psychiatric treatment unit. The department now functions mainly in the areas of psychological testing, counseling, and dealing with learning problems. Its current director is a psychologist, and a consultant psychiatrist is used when emotional problems are suspected.

Washburn Memorial Clinic

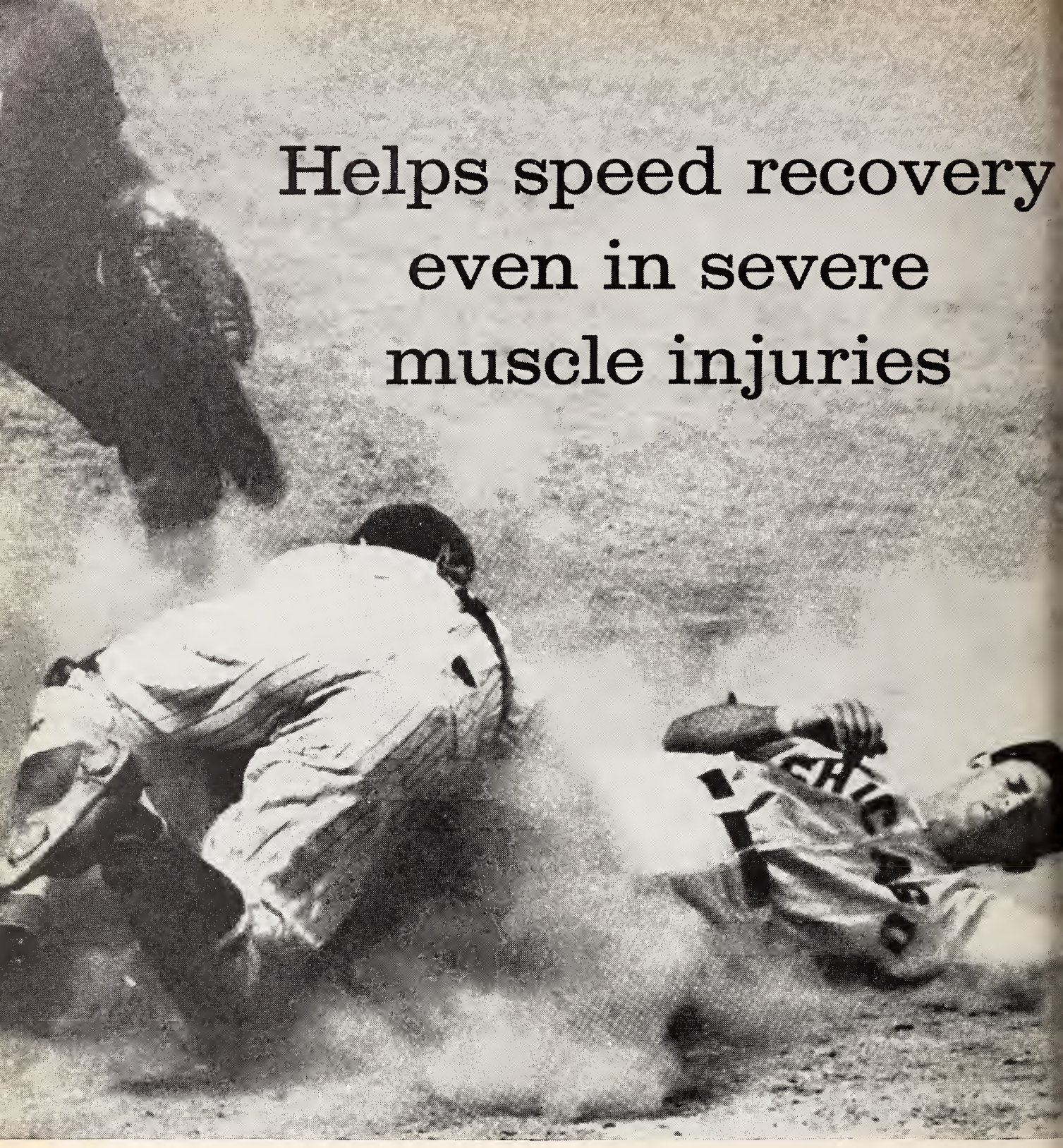
The Washburn Memorial Clinic was planned as a child guidance unit at St. Barnabas Hospital in Minneapolis in 1949-1950. Its first and only director has been Dr. Hanson. In 1956 it moved to a former maternity hospital in North Minneapolis where it continues to function at the present time. At the time of the establishment of this clinic the University agreed to assume professional but not financial responsibility; the latter is carried out by the trustees of the Washburn Foundation.

University Outpatient

During this period of development of the child guidance clinics in the Twin Cities the University was virtually without a child psychiatry service. From 1924 until 1938 psychiatric problems of children were handled by members of the pediatrics department, but this was the sole facility available. The major deficit was lack of an organized program for physicians to acquire specialization training for psychiatric work with children, which would encompass both inpatient and outpatient work. In 1936 negotiations began again with the Commonwealth Fund for appropriations to maintain an outpatient psychiatric unit for children within the University Hospitals setting. Grants were obtained for $75,000 from the Commonwealth Fund and $50,000 from the Stevens Avenue Home for a five-year period. Initially, there was opposition to the grant, as it was believed that dealing with children was the business of parents and other family members. Also there was a hostile and rejecting attitude towards psychiatry and a feeling that lack of discipline was the key to behavior problems of children.

In 1938 the child psychiatry clinic opened within the Department of Pediatrics, under Director, Dr. Eric Kent Clarke, and Assistant Director, Dr. Reynold Jensen, later to become director of the Division of Child Psychiatry. At the end of the first year Dr. Clarke stated in the annual report that he did not believe the observation of a child in a hospital was satisfactory, when more than superficial contacts were needed - unless there was an accompanying physical condition. "Hospital surroundings are artificial and geared to the tempo of the sick child. It is difficult to occupy the ambulatory patient to keep him happy. There is the constant risk of infection. Periodically we follow this course but the arrangement is not ideal."[9] Apparently Dr. Clarke had in mind hospitalization on a routine pediatric ward. At any rate, an inpatient psychiatric unit for children was not opened at the University until 1952. Until then children needing hospitalization for psychiatric purposes continued to be placed on adult psychiatric wards or kept on the pediatric service and sedated when necessary. Dr. Clarke believed that "the school of psychiatric thought which contends a deviation is entirely due to environmental trauma, with an astigmatized psychological response to experience, has a great deal of convincing data to back their opinion."[10]

By 1944 support from the Commonwealth Fund was terminated, and funds from the University were not forthcoming on an adequate



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basis to maintain the clinic. The Stevens Avenue Home had given $50,000 and at that time was willing to give only $5,000 per year for the next three years, to end in 1946. In 1945 the Board of the Home voted to terminate support for the following year, having contributed a total of $65,000. The reasons given were the disappointment of the Board that the University had not been willing and able after eight years of assistance to carry on the clinic by itself; also the main purpose of the Stevens Avenue Home in providing direct service and maintenance of a teaching program in child psychiatry for medical students was believed to be the responsibility of the medical school. During this interval Dr. Clarke had left the staff because of the declining financial support and also because of theoretical differences regarding psychiatry with his chief, Dr. McKinley. In 1945 the clinic operationally became part of the Department of Pediatrics in respect to its budget. During this period there was no outpatient clinic; patients were seen in the pediatrics clinic only on request for consultation.

University Inpatient

In October, 1952, a few converted rooms became available for inpatient children at the University,[11] remodeled quarters in which interns had previously lived. It was not until 1958 that a new twenty-bed children's psychiatric unit opened. The transfer of child psychiatry from the Department of Pediatrics to the Department of Neurology & Psychiatry evolved from the increasing concern with adjustment problems and delinquency beyond the initial interest in psychosomatic problems. This concern had led Dr. McQuarrie to advocate a psychiatric service for children as part of the Pediatrics Department from 1930 on. In July, 1959, the transfer of the Division of Children Psychiatry to the Department of Neurology and Psychiatry was finally accomplished.

At the Mayo Clinic in Rochester recognition of the importance of child psychiatry began in 1944 with the establishment of the Rochester Child Health Institute under the direction of Dr. C. Anderson Aldrich from the Pediatrics Department of the Mayo Clinic. The main emphasis of the Institute was on growth and development, both physical and emotional, and it was eventually felt necessary to bring in a child psychiatrist in 1947. The man obtained was Dr. Benjamin Spock, of well-known professional and lay fame, and the first child psychiatrist actually associated with the Mayo Clinic within the Department of Psychiatry. After Dr. Spock left, Dr. Adelaide M. Johnson, a well-known psychoanalyst, was appointed head of child psychiatry and carried on an active program of training and research with Drs. Edward M. Litin and Mary E. Griffin until 1958. At the present time, Dr. James G. Delano is the full time child psychiatrist at the Clinic.

Facilities for treating children on an outpatient basis are expanding throughout the state. At Minneapolis General Hospital a child psychiatry clinic has been added to the psychiatric service. Many children are also being seen currently at the community mental health centers established throughout the state, with plans for having child psychiatrists on their staffs when they become available, as figures indicate that children comprise more than half the patients currently being seen at these community clinics. Since the establishment of certification in child psychiatry as a subspecialty, more physicians and psychiatrists have become interested in obtaining such certification; this fact should lead to an increased number becoming available for community, teaching, and private work. At present there are only seven psychiatrists in Minnesota who have been certified in child psychiatry by the American Board of Psychiatry and Neurology. There are more who have obtained adequate training in child psychiatry and are eligible to take the examinations for certification. Still others are carrying on a practice, treating some children, although not having completed all the necessary requirements to become certified specialists.

Apart from the 20 to 24 beds for short-term evaluations at the University Hospitals, the facilities available for inpatient care of emotionally disturbed children have been almost nonexistent. Children have been hospitalized at the various state hospitals when absolutely indicated. The disadvantages in hospitalizing a child on a ward with adult psychotic patients need hardly be elaborated. At the present time a psychiatric unit for children is being maintained on the grounds of the Glen Lake Sanatorium outside Minneapolis. A small residential treatment setting at Bremer House in St. Paul is administered under the di-

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rection of Children's Service, Inc., a community agency. There are also some inpatient units at Duluth for hospitalizing a few emotionally disturbed children.

In 1963 a new state psychiatric unit for children will open at Lino Lakes in Anoka County near the Twin Cities, encompassing the facilities now operating at Glen Lake. It will have a planned capacity for 64 children and will offer long-term, inpatient, residential treatment for emotionally disturbed children up to 18 years of age in the state of Minnesota. The need and benefits from this new facility can hardly be overstated for the minority of children in need of such care, and it marks a milestone in the evolution of child psychiatry in Minnesota as a new subspecialty in the medical field.

Summary

This article has presented a brief review of the history, development and current status of child psychiatry in Minnesota, a field which did not come into its own until the last few decades. For brevity it has been necessary to omit discussion of germane topics such as the handling of mental subnormality, the field of delinquency and antisocial behavior, the relation to and use of other disciplines, medical and nonmedical, etc. Hopes are that child psychiatry now has a secure foundation, can progress to make fundamental contributions in its field, and can attain its sense of identity within the medical profession.

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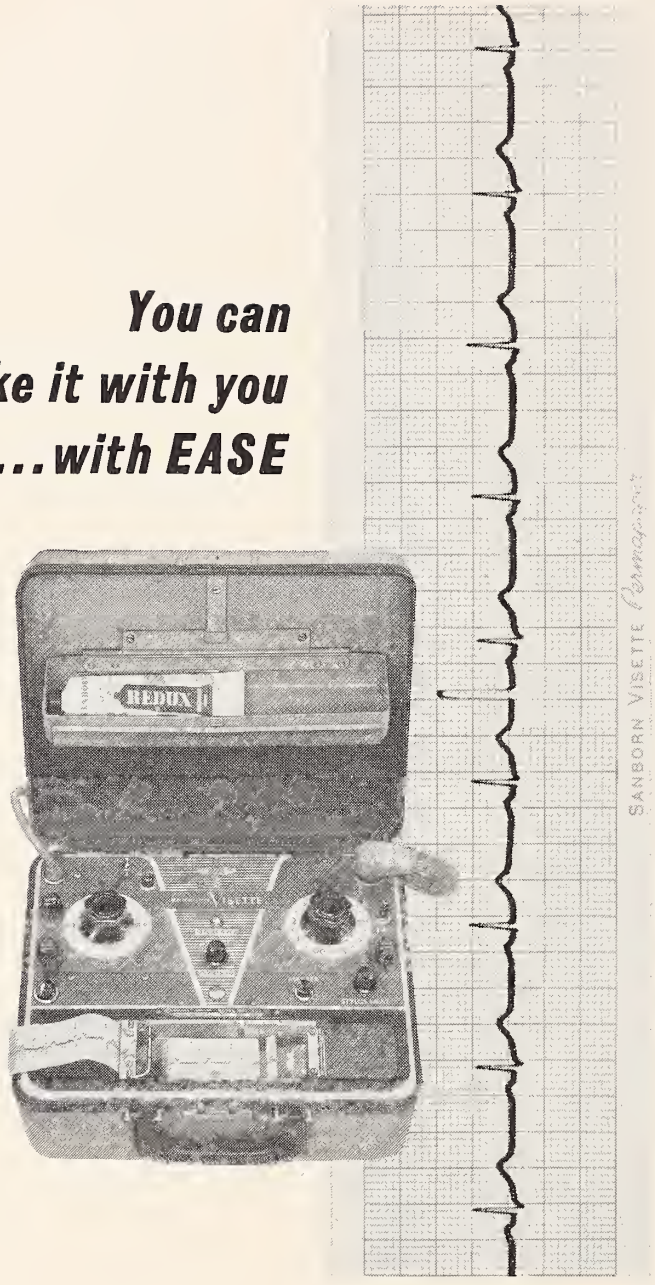
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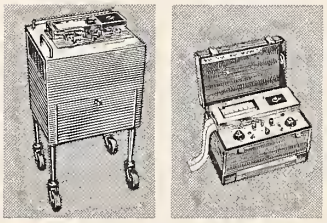
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Special Award

The Advantages of Private Medical Care

Barbara A. Barrett
634 Academy Street
Owatonna, Minnesota
Marian High School

EDITOR'S NOTE: The essay written by Miss Barrett was chosen to receive the 14th National Prize in the annual contest sponsored by the Association of American Physicians and Surgeons. For her award she received a check for $75 from the National Association of American Physicians and Surgeons organization. Chairman for the 1963 Minnesota AAPS essay contest was Doctor James A. Cosgriff, Sr. of Olivia, Minnesota.

Ours is a pluralistic society, and within this society there are many forces at work. One of these forces is federal participation in areas heretofore the providence of state, of community, and of the individual. The specific problem under discussion is governmental control of medicine, or conversely, the advantages of private medical care.

The relationship between doctor and patient is sacred. The layman looks upon the family physician as a healer, guide, philosopher, and above all, a friend. Private medical care preserves this relation. The patient feels his doctor is interested in him and will give him the kindly care of a good private practitioner. Private care is also the surest guarantee of competent care. There are no lists of approved drugs, no bureaucratic defining of services, setting of standards, establishing of committees, calling for reports, and determining of admittance. Most important, a system such as ours fulfills the patient's desire to be treated with dignity as a respected individual, not "as a casually handled body on a hospital assembly line."[1]

From the standpoint of the physician there are also many advantages. He needs to feel personally responsible for his patients to the limits of his ability. He needs to be the boss of his own office or operating table. He must have the freedom to practice as best he can, to be paid a just amount for his long difficult training and vigorous life, and he needs to be rewarded for his individual skills and services rendered, not merely as an entry on a payroll.

A federal universally imposed insurance program would be an infringement upon several of the rights we hold most dear. Among these would be freedom of choice: a doctor would not necessarily be able to practice in the area of his choice, and the patient could not be guaranteed the services of any particular physician or surgeon, especially within a hospital; the right of privacy would be jeopardized by making the patient's most intimate problems subject to commission scrutiny and possible interference; the right of free enterprise would be lost in one more field. Prices would be fixed, and the advance of medicine would halt for there is "A fundamental connection between the fee system and the march of medicine."[2] Without fees there would have been no antibiotics, no wonder drugs, no tranquilizers, no Paul de Kruif.

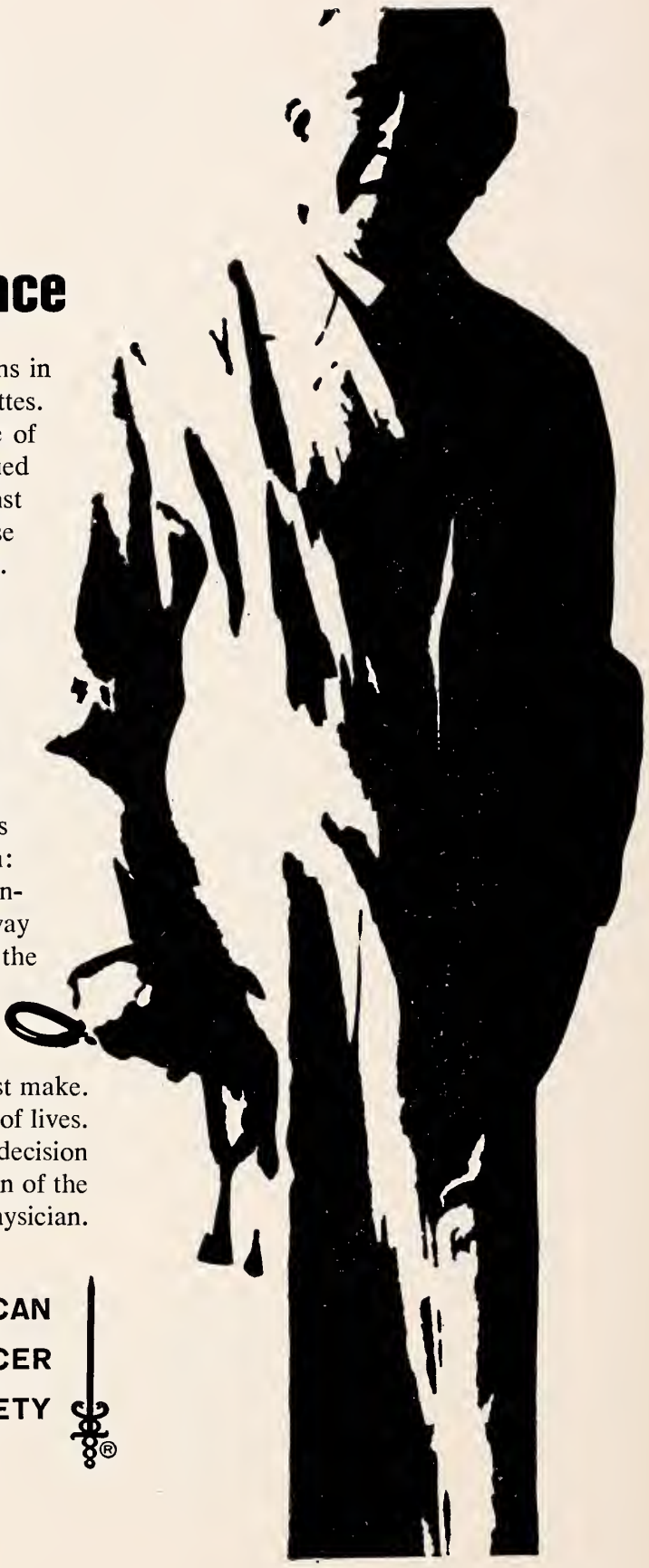
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Three out of five physicians in America do not smoke cigarettes. In England, the Royal College of Physicians of London recently issued a vigorous warning against cigarettes as the major cause of lung cancer.

Physicians today are taking the leadership in one of the great battles of our time—to save lives by warning their patients and the public about the danger of cigarette smoking. Many physicians are helping the American Cancer Society with its most popular educational program: the campaign to persuade teen-agers not to smoke—now underway in approximately one half of the nation's secondary schools.

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An argument which is often presented in promoting one of the carious forms of socialized medicine is the high cost of medical care. The American Medical Association's Economic Department, however, has concluded that in terms of hours of work necessary to purchase it, the real cost of medical care is less today than it was twenty years ago. Their conclusion is based on data from the Bureau of Labor Statistics.

On medical care as a whole, the factory worker in 1959 worked on 61% of the amount of time required in 1939. A noteworthy decrease of 39%. It should be remembered that accompanying the decrease of real cost is the higher quality of services today.[3]

Another fact which strongly advances the cause of private medical care is its support by the people. In a survey conducted by the Opinion Research Corporation, Princeton, New Jersey, an independent and nationally known sociologic study group, 80% of those interviewed believe it would be better for individuals to pay their own doctors than for taxes to be raised to pay doctors a salary.

Those interviewed in the above mentioned survey also agreed with what has already been stated — that considering the importance of their work, doctors deserve a good income and should be paid for whatever time and skill they devote to a case.

Doctors themselves, both as individuals and through the AMA, have repeatedly spoken out for private medical care and against the various proposals of welfarism, all of which they oppose, resent, or are basically unhappy about.

With these facts in mind, we should recall prohibition and the lesson it taught. Unless a measure has the support and respect of those whom it will affect, it cannot be successful.

The medical profession is feeling the effects of one of its contributions to humanity. By helping individuals to live longer, they have created a new group in society, a group more vlunerable to serious, prolonged, and debilitating diseases. So it is that a sympathy-seeking and generalized picture of people 65 and over being unable to pay their medical bills is often painted. Many surveys have indicated that older citizens have no more difficulty — and in certain cases less difficulty — meeting their medical bills than do people in other age brackets. As nearly as can be determined, less than ten percent of our elderly citizens would not be able to meet medical expenses of $500. Moreover, those in need can already receive financial assistance simply by making their need known.[4]

Despite these facts, bills for medical care for the aged abound. It must be remembered that federal intervention is a bit by bit process, and to extend to the government the financing of medical cost for the aged is but opening the door for universal health insurance.

Any step away from private medical care is a step toward Big Brotherhood, toward government interference in areas not under its jurisdiction. If an insurance program is needed, it should be made available and purchased through private enterprise, not the federal government.

In considering the advantages of private medical care and the disadvantages of the various proposals these facts should be kept in mind. Medicine, in any socialized form is a limitation of personal freedoms — choice, privacy, and initiative, freedoms guarded by private medical care; it is costly — when there is state medicine, whether it is Canada, Great Britain, or in the countries of Europe, demands for care skyrocket and so, nationwide, do costs; it greatly deteriorates the doctor-patient relationship; it does not provide good medicine — the focus, of necessity, is on where and how to find the money, and thus drugs, etc. are often of the cheapest type available; lastly, it is not necessary or wanted.

Perhaps the greatest over-all benefit or advantage of private medical care is that it keeps alive the spirit of man and his right and ability to determine his own destiny. Our society believes in private initiative. It is a grave injustice to allow the creation of socialistic attitudes in our homes and schools, to allow the impression to exist among our children that regardless of how hard they work or how hard they save, if they ever need help good ol' Uncle Sam will step in and bail them out.

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Board of Medical Examiners

ABORTIONIST EMPLOYED AS TIRE SALESMAN SENTENCED FOR MANSLAUGHTER

Re: State of Minnesota -vs- Paul H. Christeck

On July 8th, 1963 Paul H. Christeck, 47, 1770 Bryant Ave. S., Minneapolis was sentenced by the Hon. Donald T. Barbeau, Judge of the District Court of Hennepin County, to a term of five years in the State Prison at Stillwater, the execution of the sentence being stayed for five years, however, and the defendant placed on probation for the same period of time. On April 30th, 1963 Christeck had been indicted for the crime of manslaughter by the Grand Jury of Hennepin County following the death of a 19-year-old unmarried Sioux City, Iowa woman upon whom he had previously performed an abortion. The defendant entered a plea of guilty to the charge before Judge Barbeau on June 7th, 1963.

On April 23rd, 1963 when the patient was brought to Minneapolis General Hospital in an unconscious state the cause of her condition was unknown. However, a physical examination of the patient revealed that she was approximately five months pregnant and the fetus was dead. The matter was therefore reported to the authorities and an investigation was begun. It was then learned that the defendant had attempted on several occasions without success to perform an abortion upon the woman by using a catheter. On the last occasion, which was on the evening of April 22nd, Christeck forced air into the catheter after inserting it. When the defendant visited the woman's apartment the next morning and found her incoherent, he called an ambulance and the patient was rushed to the hospital.

Although no evidence was disclosed by the investigation which indicated that a fee had been paid to the defendant for his services, he admitted that the woman had told him that she would write to the person responsible for her pregnancy and request him to send $185.00. Christeck, who was employed by a Minneapolis company as a tire salesman, has no medical training and holds no license to practice any form of healing in the State of Minnesota.

LICENSE OF PLAINVIEW PHYSICIAN REVOKED

Re: In the Matter of the Revocation of the License of Robert A. Glabe, M.D.

After a hearing before the Minnesota State Board of Medical Examiners on May 3rd, 1963, the license to practice medicine held by Dr. Robert A. Glabe of Plainview, Minnesota was revoked by the Board. Dr. Glabe was found guilty by the Board of immoral, dishonorable and unprofessional conduct as defined by law and as specified in a citation which was served upon him on March 30th, 1963.

Dr. Glabe, who was formerly engaged in the practice of medicine at Plainview, had appeared before the Board on several previous occasions and on July 15th, 1960 an order was issued suspending his license to practice medicine and surgery until such time as Dr. Glabe furnished competent medical opinion to the Board that he was mentally and physically able to practice medicine without any jeopardy to his patients. The order suspending Dr. Glabe's medical license was still in effect at the time of the hearing on May 3rd, 1963 and therefore Dr. Glabe had not been practicing medicine since 1960.

Dr. Glabe was born in Oronoco, Minnesota on July 27th, 1914 and after his graduation from the University of Minnesota with an M. B. degree in 1937 he served an internship at St. Luke's Hospital in Duluth from July 1st, 1937 to July 1st, 1938. In 1938 Dr. Glabe was awarded an M. D. degree by the University of Minnesota and in February 1938 he was licensed by examination to practice medicine and surgery in the State of Minnesota. Since completing his internship in 1938 Dr. Glabe has practiced medicine at only one location, Plainview, Minnesota.

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A book that compares financial operations of all the insurance companies provides a key for evaluation. This book, the *Argus 1962 Chart of Health Insurance,* shows among other data the amount of benefits paid by the company to subscribers in relationship to the amount of money subscribers pay in.

Statistics showed that Blue Shield of Minnesota, after providing the many subscriber's services, returned 92 cents of the subscriber's dollar in benefits.

The record is amazing in light of the same statistics for most commercial organizations. No organization matched the record of Blue Shield, of course, but many did not even come close. Some organizations returned only 50 cents of each dollar — leaving the subscriber with only half of his investment in benefits. Others ranged from about 60 to 70 cents in benefits paid. Other organizations returned fewer than 50 cents per subscriber's dollar.

In all, no company in Minnesota — not even the best known insurance organizations — could come close to the performance of Blue Shield.

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1. Ford, R. A., and Blanchard, K. P.: J.-Lancet 78:185, 1958.

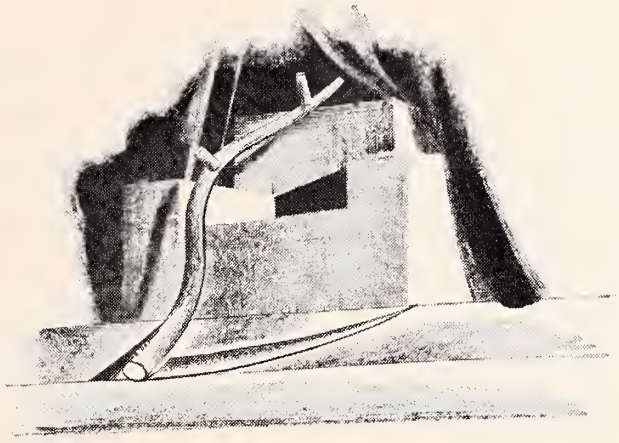
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In Memoriam

HAROLD S. TRUEMAN

Dr. Harold S. Trueman, 64, Minneapolis orthopaedic surgeon, died May 19. He was born at Munising, Michigan and received his degree in medicine from Stanford University Medical School.

A former chief of staff of Northwestern Hospital, Dr. Trueman was a member of the Hennepin County Medical Society, Minnesota State Medical Association, American Medical Association, American Academy of General Practice, Zuhrah Temple and Ceremonial Unit, Ark Masonic Lodge, York Rite. He was also examining physician for the Minneapolis Fire Department and was on the board of trustees of the Hennepin County Medical Society.

He is survived by his wife, two daughters, and a son.

ERNEST T. F. RICHARDS

Dr. Ernest T. F. Richards, 79, Dellwood, White Bear Lake, an associate professor of medicine at the University of Minnesota died June 17th.

Born in St. Vincent, the Windward Islands, British West Indies, Dr. Richards graduated from McGill university medical school, Montreal, Canada, and took graduate courses at Harvard and Heidelburg universities.

He was a 50 Club and Life member of the Ramsey County Medical Society, Minnesota State Medical Association, and the American Medical Association.

He is survived by his wife, one daughter, and two sons, one of whom is Dr. A. M. Richards of St. Paul.

PETER J. PANKRATZ

Dr. Peter J. Pankratz, 56, died June 10th in Fullerton, California. Born in Mountain Lake, Minnesota, Dr. Pankratz received his degree in medicine from the University of Minnesota.

He practiced in Mountain Lake until 1956 when he when to Taiwan as a director of the Mennonite Christian Hospital. On his return he set up his medical practice in California.

He was a member of the Southwestern Minnesota Medical Society, Minnesota State Medical Association, and the American Medical Association.

He is survived by his wife and three daughters.

JOHN T. LITCHFIELD

Dr. John T. Litchfield, 81, Minneapolis physician for more than 50 years, died July 14th. Born at New Auburn, Minnesota he received his degree from the University of Minnesota, and continued his studies at the University of Vienna.

He had been a staff member of St. Mary's, Eitel and Abbott Hospitals, and chief of staff at St. Mary's. Dr. Litchfield was a fellow of the American Association of Ophthalmology and Otolaryngology, a past navigator of the Nicollet General Assembly, fourth degree Knights of Columbus.

Dr. Litchfield was a 50 Club and Life member of the Hennepin County Medical Society and Minnesota State Medical Association and a member of the American Medical Association.

He is survived by his wife, a daughter, and two sons, one of whom is Dr. John T. Litchfield, Jr. of Saddle River, New Jersey.

I hope I shall have leisure to make good.—Shakespeare



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Meetings And Announcements

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AMA Public Health and Medical Course on Chemical and Biological Defense given August 19-24 at the U. S. Army Chemical Corps School, Fort McClellan, Alabama. Contact: AMA-Chicago.

American Academy of Physical Medicine and Rehabilitation Annual Meeting, August 26, at the Sheraton-Dallas Hotel, Dallas, Texas. Contact: Academy, 30 No. Michigan Ave., Chicago.

SEPTEMBER

AMA Occupational Health Congress, September 25-26, Jack Tar Hotel, San Francisco. Contact: AMA-Chicago.

University of Illinois College of Medicine Department of Otolaryngology postgraduate course in Laryngology and Bronchoesophagology, September 16-28. Contact: University, 1853 West Polk Street, Chicago.

Annual Meeting of the Southern Minnesota Medical Association, September 9th, Rochester, Minnesota. Contact: Dr. John Eustermann at the Mankato Clinic, Mankato.

A nine month tutorial program in Cardiology, September 15, 1963 to June 15, 1964, will be offered by Institute for Cardio-Pulmonary Diseases, Scripps Clinic and Research Foundation, LaJolla, California. Write: Secretary, Scripps Clinic, La Jolla, California.

OCTOBER

Annual Otolaryngologic Assembly, October 5-11, University of Illinois College of Medicine. Contact: Department of Otolaryngology at the University, Chicago.

American Cancer Society 1963 Scientific Session, Biltmore Hotel, New York October 21-22. "Unusual Forms and Aspects of Cancer in Man." Contact: Society in New York.

Animal Care Panel 14th Annual Meeting, Ambassador Hotel, Los Angeles, October 1-4. Contact: Exec. Sec.; 4 E. Clinton St.; Joliet, Illinois.

Annual Meeting of the Midwest Allergy Forum, Sheraton-Cleveland Hotel; Public Square, Cleveland, Ohio. October 12-13th. Contact: I. M. Hinnant, M.D.; 10465 Carnegie Avenue; Cleveland 6, Ohio.

American College of Gastroenterology annual postgraduate course, Shoreham Hotel, Washington, D. C. October 24-26. Write: College at 33 West 60th Street, New York.

Eighth International Congress on Disease of the Chest, Mexico City, October 11-15, Congress Building at the new Medical Center. Contact: American College of Chest Physicians, 112 East Chestnut Street, Chicago.

University of Minnesota postgraduate program for 1963 will be on "Failure to Thrive." Center for Continuation Study at the University of Minnesota, September 30 and October 1-2. Write: Dr. W. Albert Sullivan, Box 282, University of Minnesota Hospitals.

ANNOUNCEMENTS

University of Minnesota postgraduate program for 1963 will be on "Failure of Thrive." Center for Continuation Study at the University of Minnesota, September 30 and October 1-2. Write: Dr. W. Albert Sullivan, Box 282, University of Minnesota Hospitals.

* * *

National Medical Foundation for Eye Care Third Annual Helmholtz Memorial Award for the author of finest article or essay on eye care published in the period August 31, 1962 to August 31, 1963. Entries must be submitted to office of the Foundation not later than September 30, 1963. Address: 250 West 57th St., New York 19, N. Y.



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Physician's Diary

Two Mayo Clinic doctors received special alumnus awards recently: **Dr. William H. Bickel** was given the Lawrence College, Appleton, Wisconsin Alumni Distinguished Service Award. **Dr. Ormond S. Culp** received an honorary Doctor of Science degree from Ohio Wesleyan University.

* * *

Dr. Herbert Heise was recently elected president of the Winona Community Memorial Hospital medical staff. Other officers elected: **Dr. F. J. Vollmer,** vice president; **Dr. L. J. Wilson,** secretary; **Dr. A. W. Fenske,** chief of medicine; **Dr. L. F. Johnston,** chief of obstetrics; **Dr. W. O. Finkelnburg,** chief of surgery and **Dr. C. M. Johnson,** chief of pediatrics.

* * *

Brown & Day, Inc., St. Paul Surgical and Hospital Supply Company, has purchased the Pharmaceutical Division of Minnesota Pharmaceutical Laboratories, Inc. and appointed Merle Else as manager of its new division. The new division will be located at 62 E. Fifth Street in St. Paul.

* * *

Dr. Clyde E. Blackard has joined the Nicollett Clinic in Minneapolis. He was formerly instructor in Urology at the University of Minnesota and Assistant Chief of Urology at the Minneapolis Veterans Administration Hospital.

* * *

Dr. Frank H. Krusen, retired on July 1 as president of the Sister Elizabeth Kenny Foundation of Minneapolis and senior consultant in physical medicine and rehabilitation of the Mayo Clinic.

* * *

Dr. Robert B. Benjamin, Minneapolis surgeon, recently spoke at the Southwestern Minnesota Medical Society meeting. His topic was the practice of medicine in the Soviet Union.

* * *

Doctors Lloyd G. Bartholomew, James C. Cain and **Harold O. Perry** Mayo Clinic were given the gold medal of the American Medical Association of the annual meeting of the Association in Atlantic City. New Jersey for their exhibit entitled "Cutaneous Manifestations of Gastro-intestinal Disease." **Doctors Richard K. Winkelmann, Robert D. Kim** and **David G. Hanlon** were given a certificate of merit for their exhibit "Malignant Lymphoreticuloderma: A Cytologic Study of Lymphocytic and Reticular Proliferation in the Skin."

* * *

Dr. Karl A. Lofgren will assume command of the Mayo Clinic Naval Medical Reserve Unit, replacing **Dr. Don R. Mathieson.**

* * *

A certificate of Honorary Fellowship in the College of Chest Physicians was recently conferred upon **Dr. George E. Fahr,** Minneapolis. The degree is regularly accorded to surgeons general of the Goverment, Army, Navy, Air Force and Public Health Service.

* * *

Dr. Arthur M. Olsen, Mayo Foundation, was recently re-elected to the office of Chairman of the Board of Regents of the American College of Chest Physicians.

* * *

Dr. William G. Merrick has opened offices for the practice of otolaryngology in Duluth, Minnesota. He recently completed residency training at the University of Minnesota, Department of Otolaryngology.

* * *

Dr. Sumner S. Cohen, St. Louis Park, was re-elected president of the Tuberculosis and Health Association of Hennepin County. **Dr. Earl T. Opstad,** Minneapolis, was re-elected second vice president. **Dr. H. E. Drill** and **Dr. Dean S. Fleming,** Hopkins, were re-elected to the Executive Committee.

* * *

Certificates of Fellowship in the American College of Chest Physicians were conferred upon **Dr. Harlan D. Root** of Minneapolis and **Dr. James H. Kelly** of St. Cloud.

* * *

Dr. E. N. Milhaupt was elected chief of the medical staff of St. Cloud hospital. Other officers elected were: **Dr. T. G. Murn,** vice chief of staff and **Dr. H. E. Sisk,** secretary.

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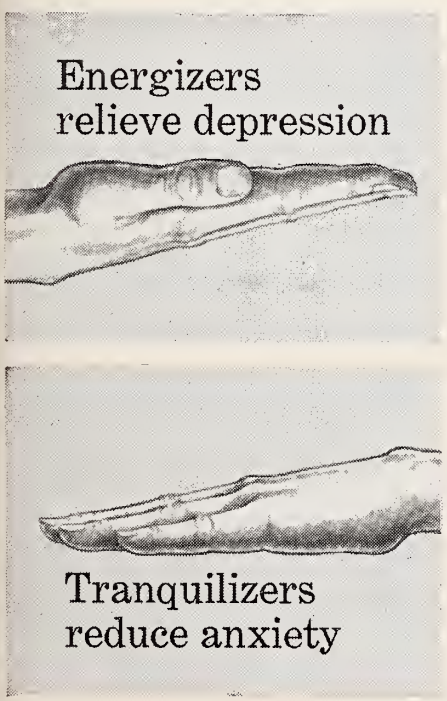
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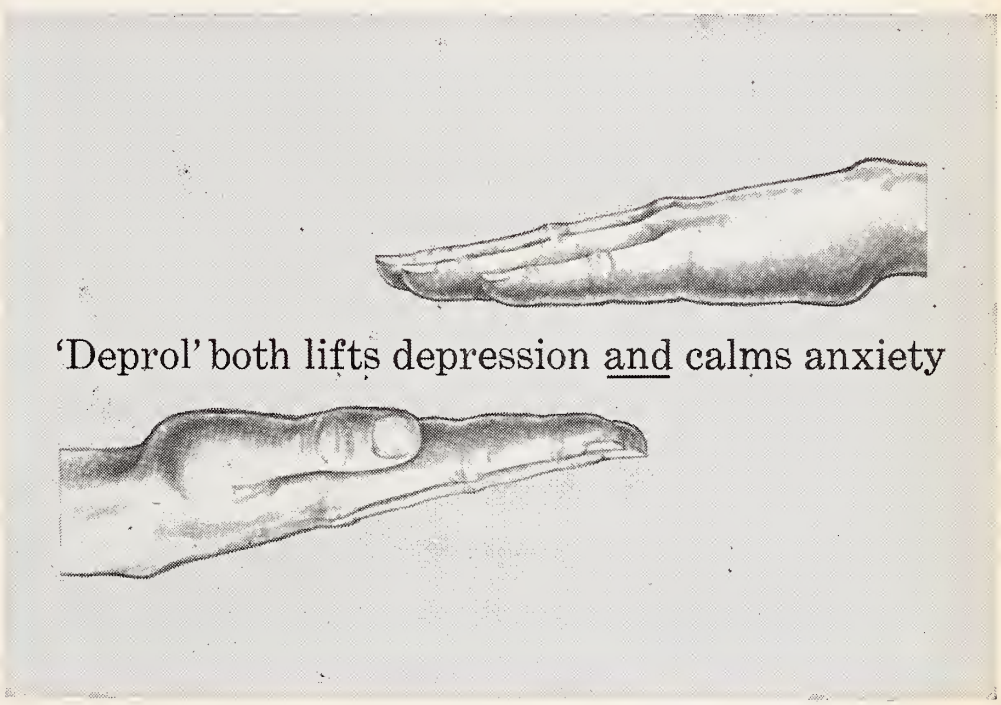
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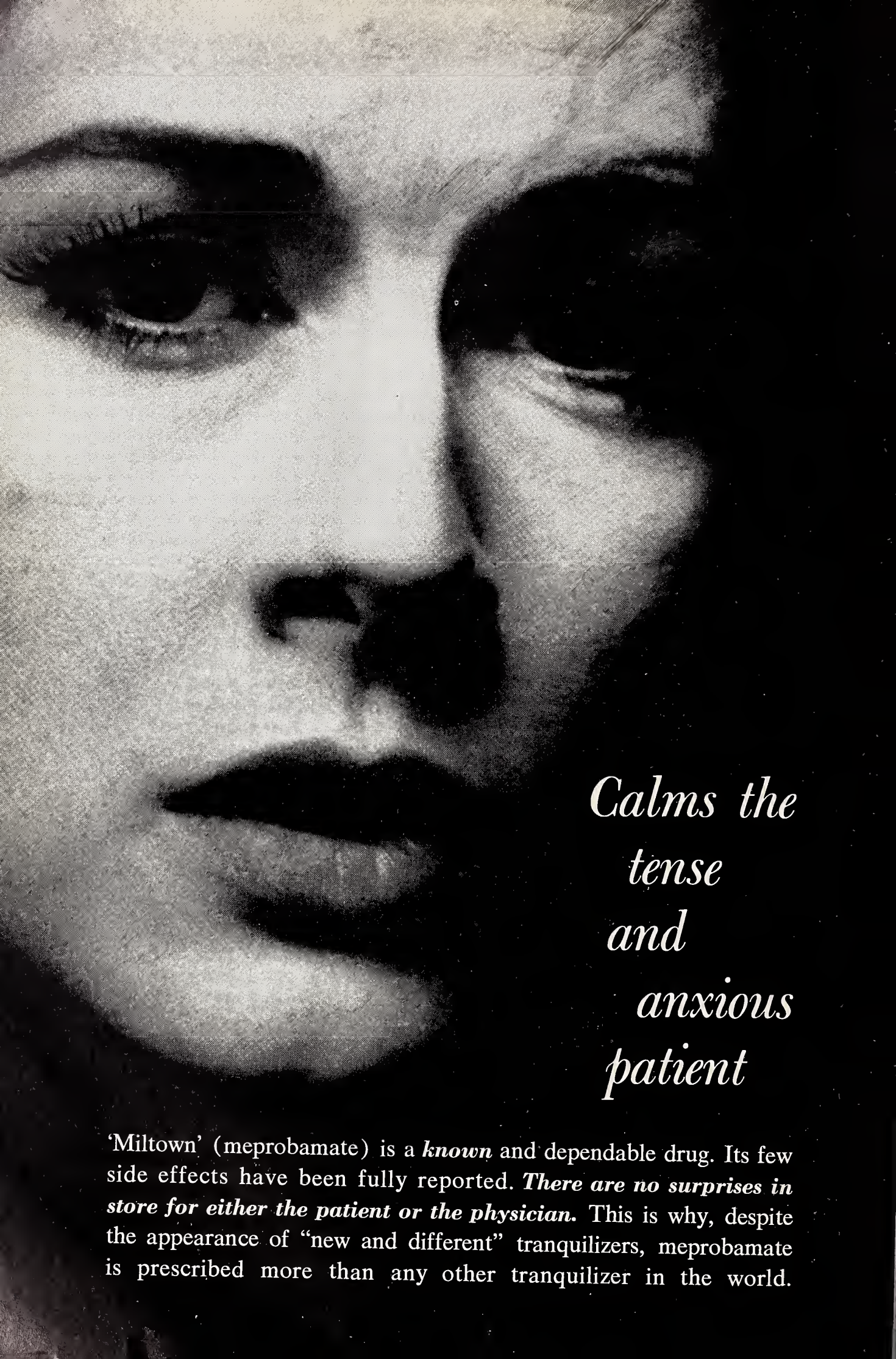
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Bibliography: 1. Williams, R. H.: Textbook of Endocrinology, Ed. 3, Saunders, Philadelphia, 1962, p. 610. 2. Gordon, E. S.: Metabolism 11:819, 1962. 3. Grodsky, G. M. et al.: Metabolism 12:278, 1963. 4. Sadow, H. S.: Metabolism 12:333, 1963. 5. West, K. M. and Tophoj, E.: Metabolism 10:689, 1961. 6. Yalow, R. S. and Berson, S. A.: Diabetes 9:254, 1960. 7. Weller, C. et al.: Scientific Exhibit, A.M.A., June 1962. 8. Weller, C. et al.: Metabolism 11:1134, 1962. 9. Radding, R. S. et al.: Metabolism 11:404, 1962.

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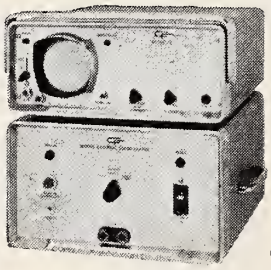
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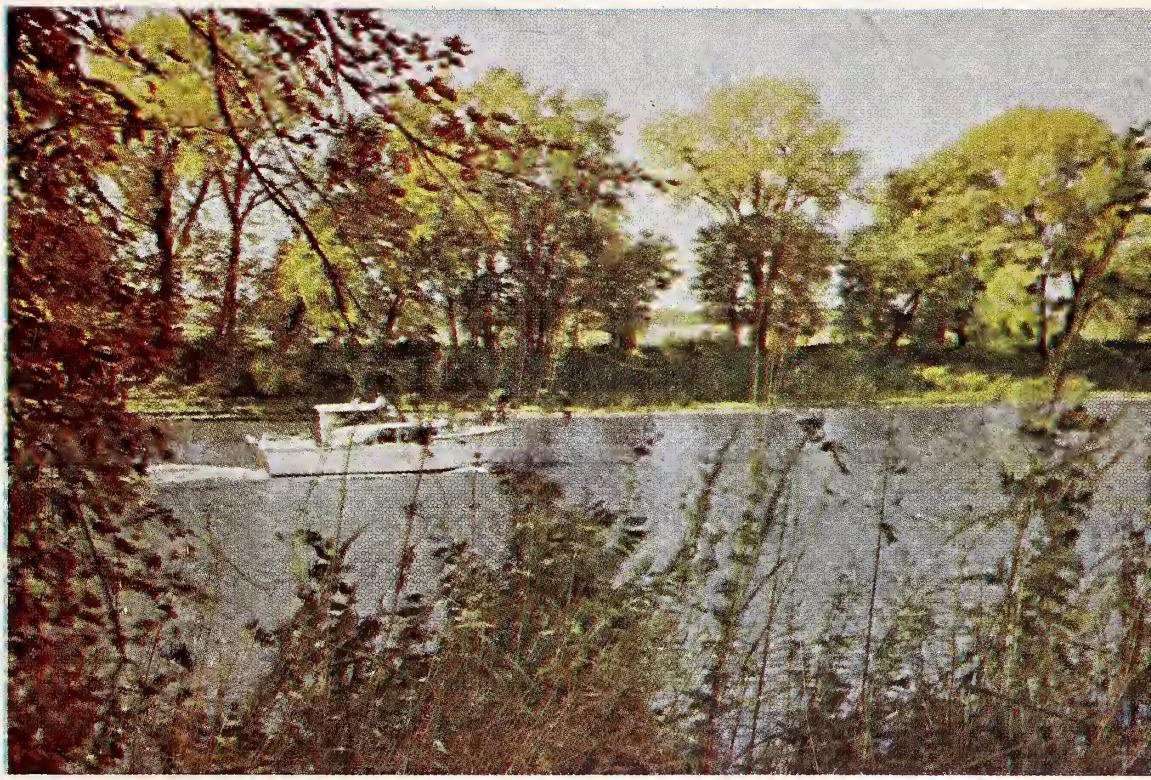
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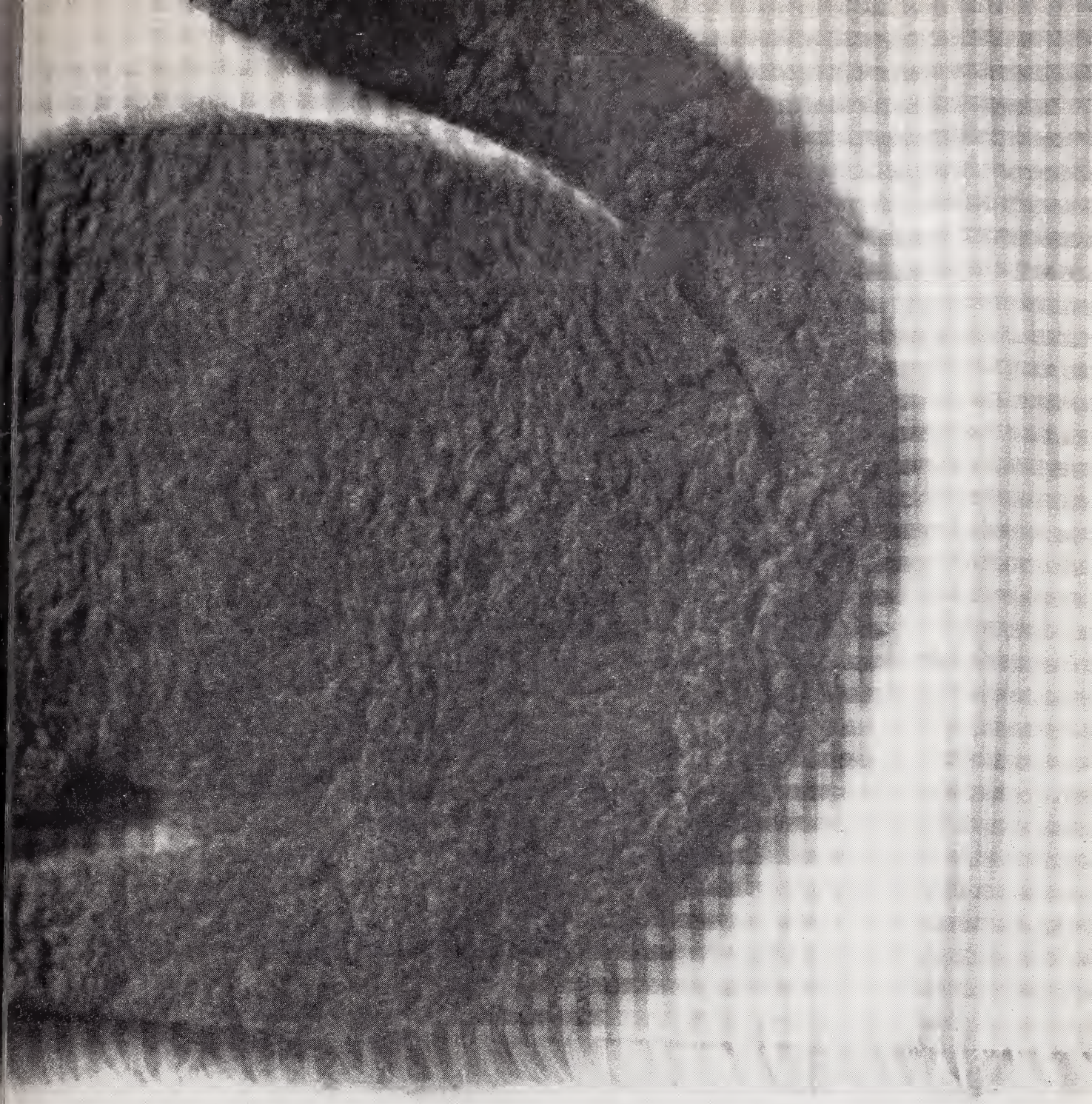
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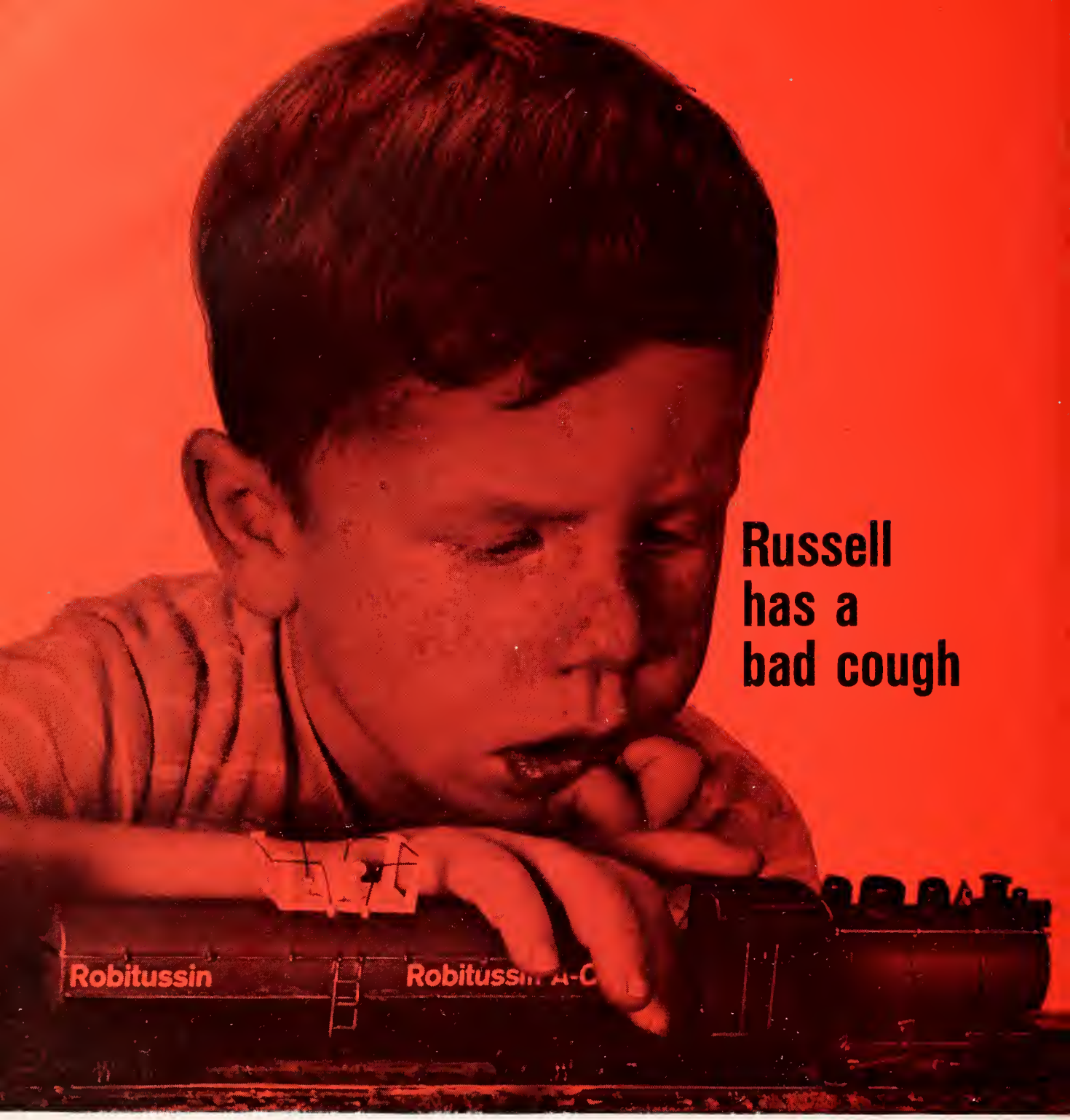
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President's Letter

The County Medical Society

Occasionally someone asks the question, "Why should I belong to the county medical society?"

Everyone should belong to his county society as it is the only group which embraces all physicians in the area. Many physicians belong to the local specialty groups and many others to the local chapter of the Academy of General Practice, which is as it should be. These groups are, however, limited in membership to those in general practice or to those whose interest is confined to special fields. The county society is the only medical organization which includes all physicians and is in a position to represent the entire profession.

Membership in the county medical society is a prerequisite for membership in the State Medical Association and the American Medical Association. The county societies serve as building blocks for the state and national societies, and through the House of Delegates of the State Association determine the policies and actions of the State Association. The American Medical Association is likewise governed by its House of Delegates, the members of which are elected by the various state associations.

Each county society has a minimum of one delegate to the State Association with an additional delegate for every fifty members. Each state association has a delegate to the American Medical Association for every 1000 members or fraction thereof. Representation is thus provided at all levels.

Membership in the county medical society is a condition of membership in The Academy of General Practice and for admission to the American College of Physicians and the American College of Surgeons. It is also required by all of the specialty boards as a prerequisite for certification and by many of the voluntary hospitals as a prerequisite to the granting of staff privileges.

Membership in the county society confers eligibility for group life insurance and also for several types of disability insurance on a group basis at premiums lower than would be required on an individual basis.

Each member of the county society has available the resources of the state and national societies, including data upon therapeutic agents, forms of treatment, information concerning partnership agreements and the establishment of pension trusts.

By far the greatest advantage of membership in the county medical society is the opportunity to work with the various problems which face the medical profession today and to have a voice in the solution of these problems.

Medicine as an organization is strong at any level, local, state or national, only to the extent it includes and represents the largest possible number of eligible physicians and provides opportunity for their collective participation.

I urge those who are not now members to apply for membership and to actively participate in the activities of the society.

Medicine faces many problems. The best solutions will come through the joint efforts of all.

Donald McCarthy

Minnesota State Medical Association
President
Donald McCarthy, M.D.



This is the key that opens the box that contains the labels. Only authorized supervisory personnel have the key to transfer labels from the "lockup box" to the labeling machine. ■ These responsible Lilly employees regard labels as serious business. To make certain that the right label appears on each container, all labels are kept under lock and key until needed on the finishing line. Only the quantity needed to finish the lot is dispensed. When transferred to the finishing belt, the appropriate number of labels is placed in the labeling machine. Excess labels are put in the lockup box until needed. At night, the supervisor returns unused labels to the box lest some get lost or misplaced. ■ This is just one more precaution in an endless list of rules that contribute immeasurably to the quality of the finished product.

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Technique Thrombectomy

Peripheral Arterial Associated with Embolization Thrombosis

KAREL B. ABSOLON, M.D.*
WARD O. GRIFFEN, Jr., M.D.*
RICHARD C. LILLEHEI, M.D.*
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THE SUCCESSFUL treatment of a peripheral embolus consists of removal of the primary obstructing element. A peripherally propagating thrombus and its consequences, however, may compromise an apparently successful outcome. Peripheral emboli may be removed through an arteriotomy by suction or extraction.[1,2] Various techniques are available for the extraction of distal thrombi, including application of vein strippers, endarterectomy instruments and retrograde flushing.[2,3,4] The technical success of removal of a peripheral thrombus will depend on the time since its onset. The longer a thrombus persists, the more intimate will be its adherence to the arterial intima. Clearly, an adherent thrombus will be more difficult to extract than one that is only of recent origin. A method of removing a peripheral thrombus using equipment generally available in modern operating rooms would be welcome. The following report concerns a technique that in our hands was found useful. In one patient a clot reaching from the upper femoral area down to the foot was successfully extracted.

Technique

The procedure consists essentially of dissection of a peripheral arterial thrombus by injection of a jet of heparinized saline. An important element of any procedure, if it is to be successful, is the prevention of morcellation of the thrombus and thus further peripheral embolization and irreversible obstruction. An arteriotomy is per-

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formed at or below the suspected site of embolic obstruction. The embolus is removed with suitable forceps, suctioning or similar. Distal dissection of the secondary thrombus consists of inserting a #240 Polyethylene tube along the clot at its junction to the vessel wall. Every few inches a jet of heparinized saline is forcefully injected and the polyethylene tube is advanced distally. Gentle tugging at the proximal end of the thrombus will indicate when satisfactory dissection is accomplished. A more distal arteriotomy may be performed and the procedure repeated (Figure 1).

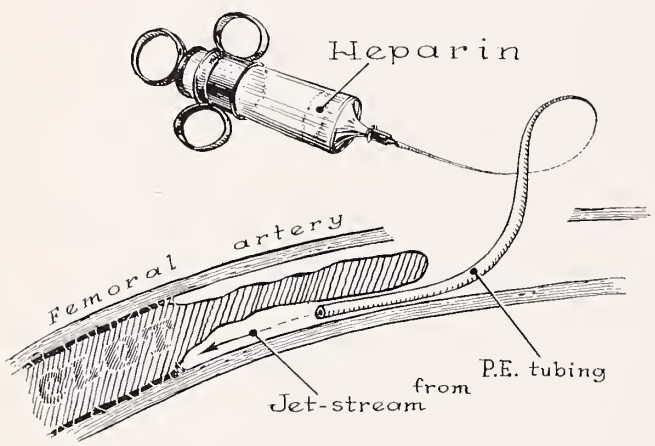


Fig. 1 — Schematic presentation of dissection of an arterial thrombus applying a jet of heparinized saline.

Case Reports

The first patient was an 85-year-old white female admitted with a history of anterolateral myocardial infarction six weeks prior to admission. Previous therapy consisted of bedrest in another hospital, and no further therapy was instituted. Some six hours prior to admission she had developed marked pain in the right lower extremity, with coldness and mottling of the leg below the upper third of the mid-thigh. A diagnosis of embolization at the bifurcation of the common femoral artery was made.

Immediate exploration revealed an embolus lodged at the bifurcation of the common femoral into the superficial and deep branches. The embolus was removed from this area, but no peripheral flow could be established, as both the deep and superficial femoral arteries were thrombosed. The above described dissection technique of thrombectomy was applied. An additional low femoral incision was made and another catheter threaded below the knee toward the foot, again applying the heparinized saline jet dissection technique. The whole thrombus could then be extracted in one piece (Figure 2). Normal flow was re-established and palpable popliteal and dorsalis pedis pulses were felt for a period of three weeks at which time the patient expired from another myocardial infarction.

The second patient was a 64-year-old white male who entered the hospital with a story of having developed thirty-six hours prior to admission, sudden "stiffness" in his right leg and inability to walk. Before his arrival at the University Hospitals the leg pain had increased markedly and the limb had become mottled and pulseless. His past history was significant in that he had had coronary artery disease since 1959, with coronary occlusions in 1960 and 1961; he had been on anticoagulants since the last heart attack.

On admission to the hospital, his right lower extremity was cold, white to ashen gray from the knee to the foot. The right femoral pulse was present but weaker than the left, and there were no pulsations below on the right. In addition, there were sensory changes and some decreased active motion. His heart was in atrial fibrillation.

Exploration of the common femoral artery showed no blood flow in this vessel. The abdomen was opened, the external iliac artery on that side was explored and a large clot removed between the iliac and femoral arteriotomies. The iliac artery was repaired. The abdomen was closed. Normal pulsations were seen up to the superficial femoral vessel but none distally. A propagating thrombus was identified distally to the femoral bifurcation. A polyethylene catheter was pushed down the superficial femoral artery into the popliteal artery. Using the "Jet dissection" technique with heparin in saline the clot from the superficial and deep femoral arteries down to the trifurcation was removed intact. Next the posterior tibial artery was opened in the ankle and an attempt was made to flush retrograde in order to open this channel. This was, however, unsuccessful as the organization of the clot in this small vessel had progressed to an irreversible state. Despite the obstruction of the posterior tibial artery, a palpable dorsalis pedis pulse was noted postoperatively. Further postoperative course was complicated by ischemic demarcation of the limb below the knee, eventually requiring amputation of the leg.

Discussion

A number of factors determine the successful restoration of blood flow to a limb with an embolus. The technical success of removing a peripheral thrombus will depend on the time since its onset. The longer a thrombus persists, the more intimate will be its adherence to the arterial lining. An adherent thrombus will be more difficult to extract than one that is only of recent origin. The ultimate outcome will be influenced by the extent of arteriosclerotic changes in the vessels to the limb and those to more vital organs.

A technique which utilizes instruments and equipment found in most operating rooms may reduce the time between embolization and treatment and may be preferable to methods involving more extensive intra-arterial instrumentation.

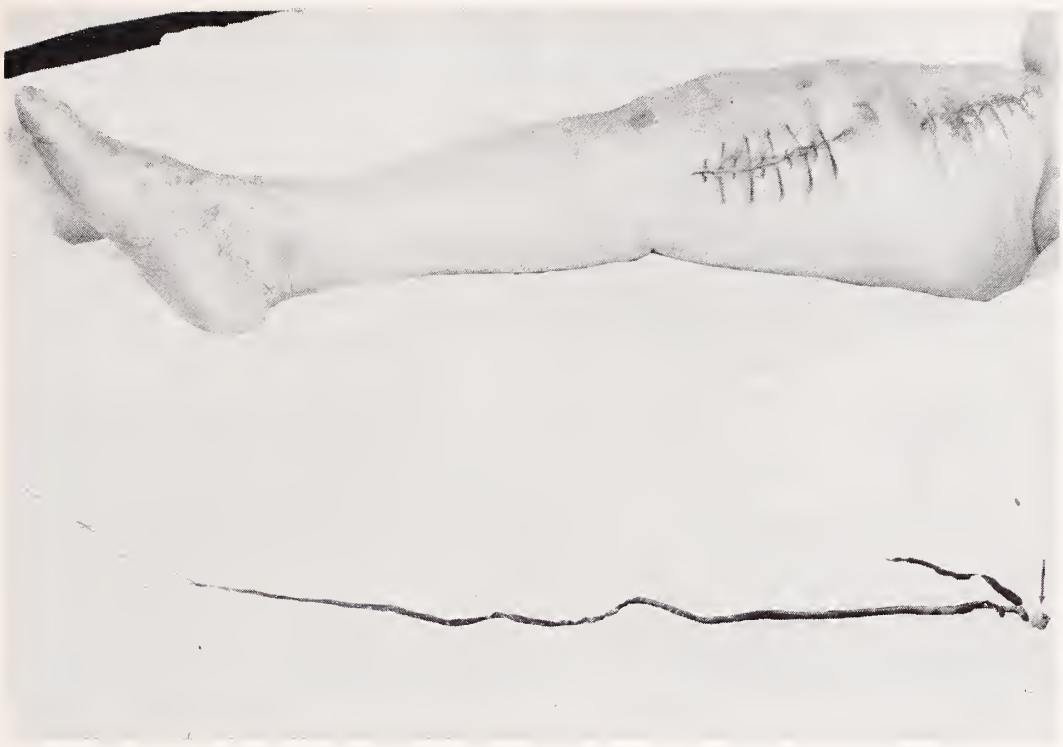


Fig. 2 (a) View of extremity on 6th operative day. (b) Extracted thrombus.

Summary

A technique of removal of a thrombus developing distal to an arterial embolus is described. The necessary instruments are a polyethylene catheter, syringe and needle, and heparinized saline. A jet of heparinized saline is injected forcibly through the polyethylene catheter as it is advanced distally between thrombus and intima. The thrombus is then separated from the intima and can be extracted completely.

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KEHR'S SIGN

This sign is represented by pain in the left shoulder and represents hyperaesthesia. It is sometimes called the shoulder strap pain. The pain in the shoulder is thought to be due to a referred pain by way of the phrenic nerve resulting from blood in contact with the undersurface of the diaphragm.

This sign is of significance in cases of abdominal injury.

WHAT'S YOUR DIAGNOSIS?

This patient, J. G., is a fifty-three-year-old white male, admitted on April 18, 1963. He had been in the hospital one week previously for study of a mild, but persistent, left lumbar pain. At that time Xrays showed a small, diaphragmatic hernia and evidences of diverticulosis of the sigmoid colon. A proctoscopic examination showed normal findings. He was discharged with a diagnosis of lumbar radiculitis. On that admission an incidental circumcision was performed for a pigmented mole on the foreskin and phimosis.

The present illness began at 8:00 p.m. the evening of admission while the patient was on the toilet. He had urinated and was just finishing defecating when he had a sudden, severe pain in the region between the umbilicus and symphysis and some pain in the right lower quadrant. The pain was very intense and the patient was unable to move from the toilet for some time because of the severity of the pain. When the physician arrived at the home, the patient was leaning against the table, did not want to move, sit down or lie down. His vital signs were normal and physical examination revealed right lower quadrant tenderness with some rebound tenderness. The patient was admitted to the hospital immediately.

At 10:30 p.m. the examinations showed a temperature of 101 degrees — oral, pulse 74, blood pressure 120/80, and the patient did not appear severely ill. The general physical examination showed no abnormalities except in the abdomen. There was a two-plus tenderness over the entire abdomen with rebound tenderness present throughout. The entire abdomen was rigid but not board-like. The tenderness was probably more severe in the right lower quadrant. The bowel sounds which had been hyperactive at home were now absent. Rectal examination showed no evidence of abnormality.

Xrays of the heart and lungs were unchanged from a 1960 examination and apparently normal. Abdominal Xray films showed a short, gas-distended loop of small bowel in the pelvis. There was no evidence of mechanical bowel obstruction or calcified urinary or biliary calculi. A white blood count taken at 11:00 p.m. showed a white count of 13,800 with 80 per cent polymorphonuclears — 12 of which were stab forms, 15 lymphocytes, 5 monocytes, 1 basophil, 1 eosinophil and 1 plasma cell. The patient was unable to void for a urinalysis. The hemoglobin was 16.4 grams.

The patient was scheduled for surgery, but the nurse called to indicate that the blood pressure had dropped to 90/60, the pulse had risen to 132, respirations were 20, and the temperature was 102 degrees. At this time the patient appeared very ill, had a pale, grayish color, was perspiring slightly and had a warm skin. His systemic condition was improved by the administration of intravenous fluids and he was operated upon a few hours later. What is your diagnosis? See page 857

He who will not reason, is a bigot; he who cannot is a fool; and he who dares not, is a slave. — William Drummond

---

People who can't keep from criticizing the younger generation usually can't remember who raised it.

The honeymoon is usually over when the bills and coos seem to be mostly bills.

Renal Failure

• Associated
• with
• Endotoxin
• Shock

JAMES A. VICK, Ph.B., M.S.
JAMES LAFAVE, M.D.
LLOYD D. MacLEAN, M.D., Ph.D.
St. Paul, Minn.

Endotoxin shock poses a serious problem for clinicians and although first described by Laennec in 1831, its pathogenesis and treatment have evoked little attention until quite recently.[1]

In the dog experimental shock characterized by a sudden, severe drop in blood pressure, fever, hemolysis, acidosis and renal failure, can be produced by the injection of purified E. coli endotoxin.[2,3,4,5] Treatment with pressor agents such as levoarterenal and metaraminol will temporarily support blood pressure in the experimental animal but with little or no effect on survival.[6] Pressor therapy may in fact further decrease the already impaired renal function as well as shorten survival time.[7,8] Large doses of steroids have also been employed in attempts to reverse canine endotoxin shock.[6,9] Used alone, or in combination with pressor agents, significant increases in survival time have been noted.[6] Thirty to forty percent of the treated animals die, however, exhibiting some degree of renal failure.[6,7]

The present study is concerned with this observed decrease in renal function and with a comparative evaluation of the effectiveness of certain therapeutic agents commonly employed clinically in attempts to reverse it.

From the Department of Surgery, Ancker Hospital and the University of Minnesota, Minneapolis, Minnesota.

Materials and Methods

Adult mongrel dogs anesthetized with 30 mg./kg. of sodium pentobarbital were used in this study. Blood pressure, renal plasma flow, glomerular filtration rate and urinary outputs were determined at intervals before and following a lethal injection of E. coli endotoxin (1.0 mg./kg.). Arterial and venous blood samples for para-aminohippuric acid and creatinine clearance determinations were taken directly from the renal vein and femoral artery respectively.[10] Urine was collected from a polyethylene catheter placed in the ureter at the level of the renal pelvis. The extraction ratio of para-aminohippuric acid was calculated as A-V/A. Ten dogs served as controls, receiving neither endotoxin nor therapy and were followed for 400 minutes. A second group of 10 animals were given the lethal dose of endotoxin (1.0 mg./kg.) and likewise followed for 400 minutes or until death.

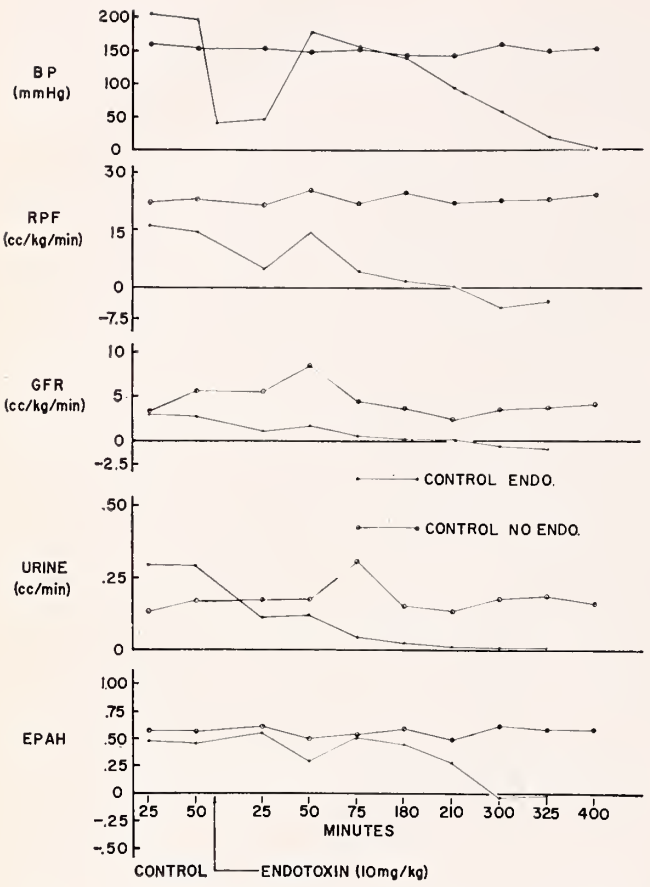


Fig. 1 — The average data obtained from 20 untreated animals are presented in this figure. The first group of 10 were given a lethal injection of endotoxin Control Endo., while the remaining 10 dogs received neither endotoxin nor therapy Control No Endo.

Three subsequent groups were treated at approximately 90 minutes postendotoxin, when hypotensive shock or anuria had developed. Aramine (Metaraminol) was given to eight dogs in amounts necessary to maintain the systemic blood pressure at 110 mg. Hg. Eight animals received hydrocortisone therapy administered as a single intravenous dose of 200 mg. Dibenzyline (diphenoxbenamine), 1.0 mg./kg., was infused into ten dogs over a period of one hour.

Results

Figure 1 presents average data obtained from the 20 untreated animals. The effect of 1.0 mg./kg. E. coli endotoxin is evident in that the blood pressure, renal plasma flow, glomerular filtration rate, urine output and extraction ratio of paraaminohippuric acid (Epah) all fell progressively after endotoxin. In the 10 animals receiving neither endotoxin nor therapy these parameters remained relatively constant throughout the entire observation period. Figure 2 compares average data from each of the treated groups with that of the untreated endotoxin animals. The decrease in renal function observed in animals treated with hydrocortisone or Aramine is indistinguishable from that of the control group. (p value > 0.10) However, the effect of Dibenzyline in reversing renal failure is significant (p value < 0.02) within 30-60 minutes after the drug is given. In some instances renal parameters after Dibenzyline actually exceeded those obtained in pre-endotoxin determinations.

Discussion

Results of this study indicate that neither large doses of steroid nor pressor agents are effective in reversing the renal failure associated with endotoxin shock. In certain dogs the infusions of Aramine, in attempts to maintain blood pressure, actually resulted in a further compounding of the already embarrassed renal function. In four animals urine flow ceased with the

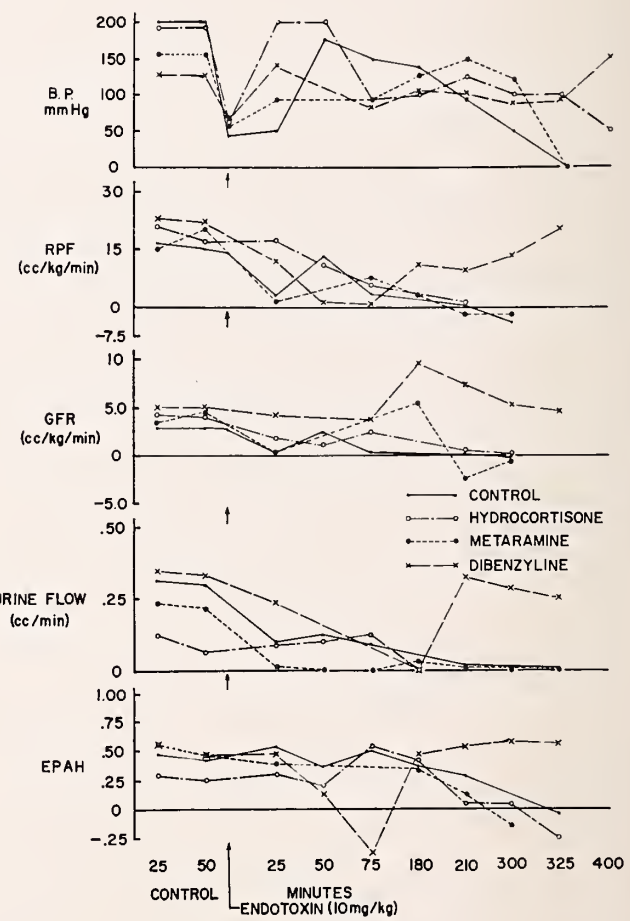


Fig. 2 — Average data from each of the 3 treated groups; Hydrocortisone, Metaraminol, and Dibenzyline are compared with that obtained from the Control endotoxin animals. The effect of Dibenzyline on renal function and urinary output post endotoxin is to be noted.

infusion of the drug. This phenomenon is thought to be associated with intense peripheral vasoconstriction and a decrease in renal blood flow.

Dibenzyline appeared to be effective in all but one of the 10 animals studied. Significant increases in renal function and urinary output were consistently noted within 30-60 minutes after the compound was administered. The increases often reached levels exceeding those of the control period, indicating excellent recovery of renal function. These increases were sustained throughout the observation period, although dibenzyline actually lowered the blood pressure in certain animals to levels of 50 and 60 mm. Hg. This decrease in perfusion pressure does not appear detrimental provided there is adequate circulating blood volume associated with the vasodilatation. However, as Nickerson has stressed, this hypotension associated with peripheral vasoconstriction is not tolerated.[11] It might seem as though dibenzyline acts to relieve peripheral vasospasm and increase the flow to vital tissues at the expense of pressure. Of interest is the normal or near normal function of the kidneys at this reduced pressure under the influence of the drug. The actual mechanism by which dibenzyline acts to increase renal function in shock is unknown but may be related to its blocking action on endogenous epinephrine, nor-epinephrine and histamine.

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ANSWER TO WHAT'S YOUR DIAGNOSIS

(From page 854)

A ruptured sigmoid diverticulitis with abscess was found. There was some regional peritonitis. The peritoneal cavity was cleared and the abscess drained. Recovery was satisfactory.

Execute every act of thy life as though it were thy last.—Marcus Aurelius

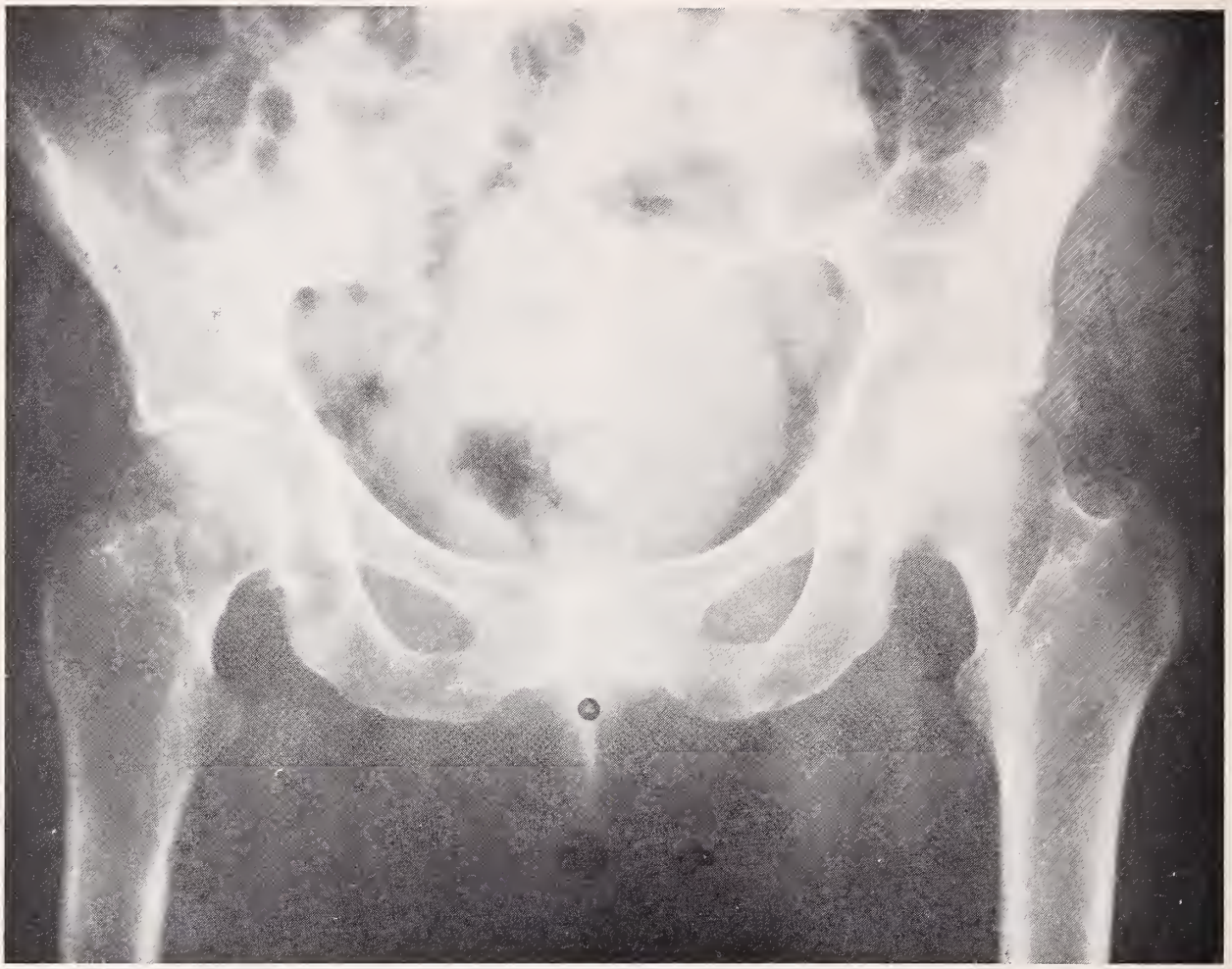


Fig. 1 (a) — Slightly impacted intracapsular femoral neck fracture in a 79-year-old female. Fragments are in relatively good position with slight external rotation of distal fragment.

A. B. CRUZ, JR., M.D., M.S.*
H N. SMITH, M.D.
St. Paul, Minn.



Fig. 1 (b) — Preoperative reduction; AP view shows the fracture fragments in excellent position following reduction with the desired valgus correction. Accurate reduction is demonstrated and confirmed by the lateral view.

Femoral Neck Fractures

A Technic for Insertion of the Massie Nail

*A Report of 26 Consecutive Cases***

THE VALUE and mechanical advantages offered by the telescoping nail in the treatment of intracapsular femoral neck fractures have been well established by Massie.[1] Experience with the use of the Massie nail in this institution has led to a few observations pertaining to the insertion of the nail during surgery. In previous publications[1,2] it has been recommended that the telescoping nail be inserted in the extended position. Initially that technique was employed by these authors but was eventually superseded by another method wherein the nail is inserted in the collapsed method. It is the purpose of this report to present our experience with this method of inserting the telescoping nail.

Material

Twenty-six patients with intracapsular femoral neck fractures admitted to this institution from December, 1960, to June, 1961, are included in this series. Females predominated over males in a ratio of 2.3:1. The average age was 74.7 years with a range of 49-97 years.

Method

The patient as a rule is operated on within 24 hours from the time of injury. This usually allows sufficient time for a medical work-up and preoperative preparation to be carried out satisfactorily.

The patient is placed on a fracture table and the lower extremities are secured to the foot plates in the extended position. Traction is applied to both legs along the long axis of the body. The contralateral leg is abducted to allow the proper positioning of the lateral X-ray tube. The affected leg is very slightly abducted and internally rotated by two operators, one gripping the leg at the knee and the other, the foot plate. The internal rotation is accomplished by a simultaneous and synchronous maneuver by both operators.

A few sudden thrusts are given the trochanteric area of the affected side in a medial direction. With continued medial pressure on the

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**Presented at the Minnesota Surgical Meeting, November 9, 1962, St. Paul Minnesota.

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same area traction is eased off from the contralateral leg. This causes a tilting of the pelvis toward the affected side[1] and, combined with the slight abduction of the affected leg, produces a reduction and impaction of the fracture fragments in a slightly valgus position.

Anteroposterior and lateral X-ray pictures are taken to check and confirm the reduction. If reduction is unsatisfactory the procedure is repeated until satisfactory results are obtained. (Figure 1 — A & B)

A longitudinal incision measuring 15-18 cm. in length is made in the lateral aspect of the thigh beginning 2-3 cm. below the greater trochanter and carried down to the subcutaneous tissue. The tensor fascia lata is split along its fibers. The vastus lateralis is likewise split along its fibers to expose the lateral aspect of the femoral shaft and the flare of the greater trochanter.

A 0.6 cm. (¼ inch) hole is drilled at an angle of about 150° in the lateral cortex of the shaft at a point 6.5 cm. below the flare of the greater trochanter. With the aid of a hand drill one or two guide wires are inserted part way and then tapped gently with a mallet the rest of the distance until the points impinge into the denser bone of the cortex of the femoral head. Much information can be gained by "feeling" the change in densities as the guides are being tapped in.[1] X-ray pictures are taken at this juncture to check the position of the wire(s). Usually, especially in the latter part of the series, it is not necessary to use more than one guide wire. Using a reamer attached to a motor drill a 1.5 cm. hole is reamed out along the guide wire in the lateral cortex. The length of the guide wire inside the neck and head of the femur is determined accurately by measuring the part that protrudes. Knowing the length required, the nail with the inserter in place is extended to the desired length, and with the aid of the calibrated markings in the inserter the length is measured off accurately.

The inserter is removed, an appropriate side plate is clipped on and the whole assembly with the nail fully collapsed is inserted and driven in, using the driver (impacter) until the nail sleeve and the side plate are fully seated. Using the inserter (and keeping in mind the previously measured length as marked off in the calibrations of the inserter) the inner nail is driven the rest of the way in. X-ray pictures are taken for the third time and these usually show the tip of the nail to be 3-5 mm. distal to the cortex of the femoral head. Generally the guide pin is removed just before completely extending the nail to the desired length. Two screws are inserted to fix the side plate to the femoral shaft. (Figure 2)

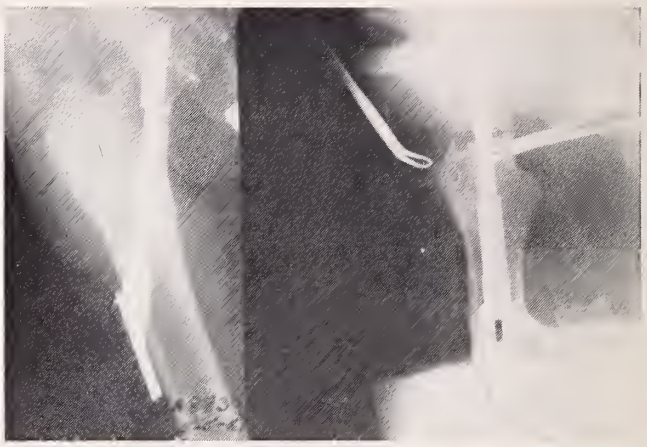


Fig. 2 — Same patient as in Fig. 1 A-B. The nail is in an ideal position following extension of the inner component. Usually the tip is driven in about 3-5 mm. distal to the cortex.

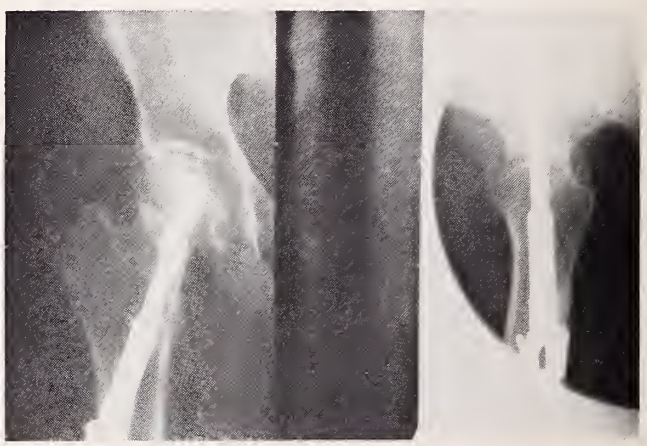


Fig. 3 — Follow-up AP and lateral roentgenograms taken 12 months after surgery. Healing is excellent with complete obliteration of the fracture line and re-establishment of trabecular pattern. In this patient the femoral neck was shortened 3 mm. Position and distance of the nail tip from the cortex of the head is maintained.

The wound is irrigated thoroughly with copious amounts of normal saline solution. Fascial layers are closed with #2 chromic catgut sutures. Skin and subcutaneous tissue are approximated as one layer, using interrupted deep vertical mattress sutures of 3-0 silk or #30-32 stainless steel

wires and simple superficial sutures of the same material.

Convalescent Care and Follow-Up

X-ray pictures are taken on the first or second postoperative day with the affected leg in internal rotation. One of the authors accompanies the patients to the X-ray department to help in the positioning and to insure the standardization of technic. This first set of postoperative pictures forms the basis for comparison of future X-ray follow-up, done in the same fashion at stated intervals of 10 days, 1 month, 3 months, 6 months, 9 months and 12 months postoperatively.

The patient sits in an ordinary chair or wheelchair on the first postoperative day. Passive flexion and extension of the knee and hip are started on the second postoperative day. Around the 10th or 12th postoperative day when the incision pain is largely gone, the patient is ambulated without weight bearing in a walker, progressing to a pair of crutches when tolerated. Quadriceps exercises are also instituted.[2] Patients usually start partial weight bearing at about the third month after the operation and gradually progress to full weight bearing at 6-8 months postoperatively.

The section of Physical Medicine and Rehabilitation assumed a large and important role in the convalescent care of our patients even long after they have been discharged from the hospital. (Figure 3)

Results

Of the 26 patients that were operated on, two died within 10 days from the time of the operation; one on the first postoperative day with signs



Fig. 4 — Roentgenograms of the hip in a 69-year-old white female with manie-depressive psyehosis and admitted apparently several days post-trauma. There is evidenee of bone resorption along the fracture line in the proximal fragment. Reduction and internal fixation was diffieult.

and symptoms of acute adrenal insufficiency, and the other on the sixth postoperative day. The latter was the oldest patient (97 years) in the group and had severe malnutrition and inanition even before surgery. A third patient died 16 days postoperatively of massive upper gastrointestinal bleeding from peptic ulcers.

In one unmanageable patient, a 69-year-old female with manic-depressive psychosis, the nail protruded into the acetabulum in association with displacement of the femoral head on the 14th postoperative day. The nail had to be extracted and an Austin-Moore prosthesis inserted nine days later. (Figures 4, 5 & 6)

Two patients were lost to follow-up, although one was eventually found to be doing well in a mental institution. Twenty patients were followed up for periods ranging from six to 22 months postoperatively.

There was only one wound infection from which staphylococcus and proteus organisms were cultured. This patient was in an automobile accident and had multiple fractures of the distal tibia and fibula of the contralateral side and a ruptured spleen. She had an uneventful recovery from all of her injuries, including the wound infection, without serious sequelae.

X-ray follow-up showed that, out of the 20 patients, 17 (85%) had some degree of nail shortening secondary to bone absorption of the femoral neck. Absorption of 0.2-1.0 cm. were recorded with an average of 0.5 cm. (Table 1)

Three patients showed protrusion of the nail into the acetabulum. One of them was the 69-year-old psychotic female previously mentioned. Another was an 82-year-old female in whom the nail protruded about 4-5 mm. into the acetabulum. She had moderate pain and walked on crutches until the 11th postoperative month when the nail was removed. Subsequently she has walked well with the aid of a cane and no

TABLE 1
X-Ray Follow-up

Number of patients with evidence of nail shortening (20 long-term follow-up)	Average shortening at 30 days (maximum)	Number of patients with nail protruding into the acetabulum
17 (85%)	.46 cm.	3

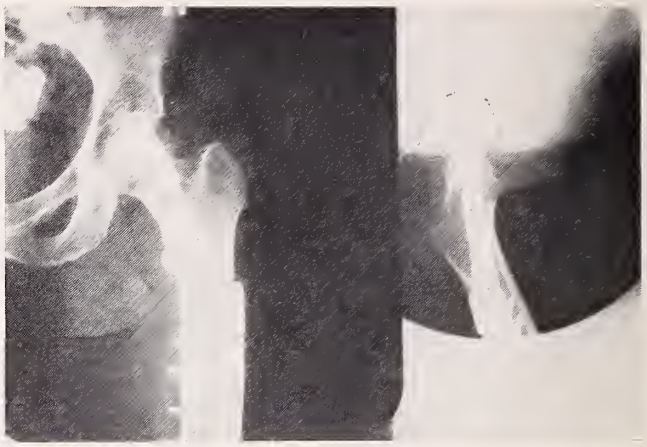


Fig. 5 — Roentgenograms on first postoperative day reveal the nail in a poor position, being too far laterally from the medial cortex of the shaft and the flanged tip imbedded in the superior portion of the femoral head.



Fig. 6 — By the 14th postoperative day the tip of the nail penetrated completely through the superior portion of the femoral head accompanied by an upward displacement of the distal fragment. The nail was extracted nine days later and an Austin-Moore prosthesis inserted.

pain. The third patient was a 49-year-old male who returned to normal ambulation with minimal discomfort in average time. Follow-up X-rays showed that the nail had protruded about 2 mm. into the acetabulum. (Table 2)

TABLE 2
ANALYSIS OF CASES WHERE NAIL PROTRUDED INTO THE ACETABULUM

#1 — Nail removed 11th postoperative month with relief of pain. Patient's ambulation good with the aid of a cane.
#2 — Nail protruded at 14th postoperative day with displacement of femoral head. Austin-Moore prosthesis inserted at 23rd postoperative day. Patient mentally incompetent and unmanageable.
#3 — Nail protruding only about 2 mm. through cortex. Patient walking well without assistance.

Long-term results are grouped into four categories: (1) Excellent; (2) Good; (3) Fair; and (4) Poor. (Table 3) There were 12 (46.2%) patients with excellent results; five (19.2%) with good results; two (7.7%) with fair results; and two (7.7%) with poor results.

Discussion

During our initial experience with the Massie nail, when it was inserted in the extended position as previously recommended, a few observations were made indicating possibilities for shortening the procedure and improving the results.

In some instances the nail would telescope with difficulty or not at all; then, as the outer sleeve was driven in, there was a tendency for the nail to protrude into the acetabulum. Whether this was due to bone tissue becoming impacted between the nail and sleeve, or attributable to a factor inherent in the design of the nail itself, is a matter of speculation.

Furthermore, with the usual method, after the first attempt at insertion and before X-ray verification, the exact position of the tip of the nail in relation to the cortex of the femoral head is, at best, a rough estimate. Consequently, it is frequently necessary to tap the nail in a little farther, or to shorten it, depending on the X-ray pictures. All these readjustments are monitored by Xrays and inevitably result in a significant prolongation of the procedure.

The method we have used shortens the operating time and permits more accurate placement of the tip of the nail in the femoral head with minimum effort. As described earlier, the nail is inserted fully telescoped, the sleeve is driven in until fully seated, and the nail is then extended to a predetermined length which has been measured off accurately beforehand with the aid of the inserter and its calibrations. X-ray pictures usually show that the tip of the nail is about 3-5 mm. distal to the cortex of the femoral head. This is preferable, as the deepest penetration permissible favors a more stable fixation.

With this method we have not experienced any difficulty in the telescoping properties of the nail. Extension from a collapsed position has offered no problems at all. Invariably we could position the tip of the nail 3-5 mm. distal to the cortex on the first attempt.

In retrospect the poor results obtained in two cases are largely attributable to advanced age, senile dementia, psychosis, and extremely poor general physical condition. It is now obvious, in retrospect, that these patients should have had a prosthetic replacement from the beginning. They fulfill the requirements for insertion of a hip prosthesis as recommended by others.[1,3]

TABLE 3
SUMMARY OF RESULTS

	No. of Cases
Excellent	12 (46.2%)
Good	5 (19.2%)
Fair	2 (7.7%)
Poor	2 (7.7%)
Lost to Follow-up	2 (7.7%)
Immediate Postoperative Deaths (w/in 10 days)	2 (7.7%)
Hospital Deaths (w/in 30 days)	1 (3.8%)
Wound Infection	1 (Staphylococcus and Proteus)
Long-Term Deaths (after 30 days)	2 (4 months — pulmonary infarct) (6 months — myocardial infarct)

LEGEND:
1. Poor — Unable to walk; pain; nail protruding or displaced.
2. Fair — Walking with the aid of crutches; minimal amount of pain.
3. Good — Walking with the aid of cane; no pain.
4. Excellent — Walking without any assistance; or return to normal function previous to injury.

Summary

Twenty-six consecutive cases of intracapsular fracture of the femoral neck were treated with internal fixation using the Massie nail. An alternate method of inserting the nail in a fully collapsed position is described and its advantages discussed.

Excellent results were obtained in 12 (46.2%), good results in five (19.2%), fair results in two (7.7%) and poor results in two (7.7%). Two were lost to follow-up and two died in the immediate postoperative period. One patient died of massive upper gastrointestinal hemorrhage from peptic ulcers on the 16th postoperative day.

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ZOLLINGER-ELLISON SYNDROME

This syndrome is a relatively newly identified disease described by Zollinger and Ellison as constituting a diagnostic triad including the presence of peptic ulcerations in unusual locations of the upper gastro-intestinal tract, gastric hyper-secretion and hyper-acidity, and the final identification of nonspecific noninsulin-producing islet cell tumor of the pancreas.

Abdominal pain is a constant complaint and excessive acidity is not found to be significantly altered by vagotomy, subtotal gastrectomy, or irradiation of the stomach. Operative procedures have not proven to be of permanent benefit in relieving these patients.

The hyperglycemicglycogenolitic glucagon factor of the pancreas has been suggested as one of the factors originating from the noninsulin-producing islet cell tumors.

Fortunately, because the treatment of this condition is extremely discouraging, the incidence of this syndrome is relatively rare, though it must be considered in patients who suffer intractable dyspeptic symptoms.

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Eternal Vigilance

I find it difficult to count my change with someone else's hand in my pocket.

If wrinkles must be written upon our brows, let them not be written upon the heart. The spirit should not grow old. — James Garfield

Colloid Cysts of the Brain

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JOSEPH J. BERKE, M.D.**
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PARAPHYSIAL OR colloid cysts are located within the third ventricle of the brain. Consideration of their origin has resulted in several theories. In 1909, Sjövall[1] described the cyst as being derived from the paraphysis, an embryonic structure present in the phylogeny of all vertebrates and located in the rostral portion of the roof of the third ventricle anterior to the velum transversum. Although present in the adult forms of many animals, the paraphysis is transitory in the human embryo. According to Krabbe,[2] as the cyst increases in size, it gravitates to lie in the mid-line between the foramina of Monro (Figure 1.). In its descent, the cyst is enveloped by the layers of the tela choroidea and the vessels of the choroid plexus. The intimate association with the choroid plexus has caused other authors[3] to attribute the development of the colloid cyst to this structure. Studies of the epithelial lining and content of the cysts have led Ariëns Kappers[4] to theorize that diverticula and tubules from the ependymal lining of the diencephalon become secondarily dislodged and result in the cystic formation. The disagreements regarding the origin and content of the cyst have been responsible for the various names that have been applied — neuroepithelial cyst, ependymal cyst, paraphysial cyst, colloid cyst, or choroidal cyst.

The purpose of this review is to summarize the diagnostic aspects and surgical technics used in the management of these lesions.



Fig. 1 — Transverse section of brain showing a colloid cyst occupying the third ventricle and obstructing the foramina of Monro.

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Diagnostic Aspects

Historical Review

Tumors of the third ventricle have received considerable attention in the past, and particular notice has been given to the nature and symptomatology of the colloid cysts. Dandy,[5] in 1933, reviewed his series of five cases which he considered along with 31 cases previously reported. Headache, visual aberration, and weakness were the most common initial symptoms. Headache of variable location occurred in more than 70 per cent of the patients and was associated with papilledema and other signs of increased intracranial pressure. The occurrence or relief of headache with change in posture was also emphasized. Paralysis of ocular movement, especially upward gaze, cerebellar ataxia, signs referable to the pyramidal tract, hypersomnia, nausea, and vomiting have been mentioned also as a part of this syndrome. Disorders of memory that fluctuate or progress to dementia, spasticity, incontinence, convulsion, nystagmus, and Parkinsonism have been described as additional findings.[6-9]

The most extensive series of cases has been collected by Yenermen and associates,[10] who studied 54 cases and re-evaluated 200 that were reported previously. In this series diurnal headache of variable location and nature was the most frequent initial symptom and occurred in 85 per cent of the cases. The headache tended to start and cease abruptly. Exacerbation of this symptom by activity and immediate relief by recumbency was noted only infrequently. Exophthalmos during attacks, diplopia, ptosis, and strabismus were mentioned. Additional signs less helpful in diagnosis, such as hemiparesis, changes in reflexes, muscular rigidity or weakness, athetosis, motor uncinate and sensory seizures, lethargy, mental and emotional disturbances, loss of libido, and autonomic and temperature dysfunction were less prevalent. General laboratory, electroencephalographic, and electrocardiographic studies were all noncontributory in diagnosis.

Cases Studied

Records of 13 cases in which operation for paraphysial cysts had been performed, representing the total number of such cases at the Mayo Clinic from 1939 to 1962, form the basis of this study. All of the patients were males whose ages ranged from six to 51 years (Table). The median age was 35 and the mean age was 38 years. The initial symptom was headache in nine patients, lethargy in three, and blurred vision in the remaining individual. All three symptoms were prominent in six patients during the interval prior to operation. Headache, nausea, and vomiting without subjective visual disturbance were noted in seven patients. The nature of the headaches was not uniform. The pain usually was intermittent, lasting 30 minutes to 48 hours. Slight relief was afforded with a mild analgesic such as aspirin. The headaches varied from daily to biweekly occurrence. Their location was generalized in most cases, although two patients complained only of occipital discomfort; one mentioned supraorbital headache and another, frontal headache exclusively. No nocturnal pain or variation of discomfort associated with change in body position was described.

Ataxia and dizziness were noted by four patients. Episodes of unconsciousness (confusion and loss of memory) were mentioned by two. Of the latter two, one patient experienced grand mal seizures. The relatives of four patients reported varying degrees and intermittent periods of mental confusion or loss of memory in the patients.

Physical and neurologic examinations revealed a paucity of abnormal findings. Ophthalmologic examinations in all except one patient demonstrated choked disks. The severity of papilledema ranged from an elevation of five and six diopters to a slight blurring of the temporal disk margins. Examination of the visual fields revealed only one instance of abnormality, an incongruous left homonymous hemianopsia.

Neurologic findings were within normal limits in nine patients. Only one patient had a convulsive seizure. Bilateral Babinski's reflexes were the sole deficit in one case, whereas a left extensor toe sign was demonstrated in two patients. Minimal ataxia and adiadochokinesis were recorded in one case.

Electroencephalography was performed in 10 cases. No constant pattern or localization was evident. However, in nine of the 10 cases some electroencephalographic abnormality was noted.

TABLE
Colloid Cyst of the Third Ventricle

Case	Sex and age, yr.	Complaints on admission	Neurologic findings	Ophthalmologic findings	Roentgenographic and ventriculographic findings
1	M, 23	Throbbing headache daily	Babinski's reflex on left	O.D., 2 d. O.S., 1½ d.	Increased intracranial pressure with sellar erosion (no ventriculogram made)
2	M, 43	General, dull headache weekly with visual loss	Negative	O.D., 1-2 d. O.S., 1-2 d.	Dilated lateral ventricles, mass in third ventricle (ventriculography)
3	M, 38	Supraorbital headache for 1 wk., lassitude and confusion	Memory loss	O.D., 1 d. Early choked disks	Increased intracranial pressure with sellar erosion, defect in third ventricle (ventriculography)
4	M, 28	Pounding frontal headache with blurred vision	Negative	O.D., 4 d. O.S., 3 d.	Dilated lateral ventricles, mass in third ventricle (ventriculography)
5	M, 51	Throbbing, occipital-frontal headache, vomiting, nausea, and dizziness	Negative	Negative	Dilated lateral ventricles, mass in third ventricle (pneumoencephalography)
6	M, 43	Occipital headache daily, general headache for 9 mo., nausea and vomiting	Negative	Blurring, lower poles of disks	Dilated lateral ventricles, mass in third ventricle (pneumoencephalography)
7	M, 45	Fatigue, ataxia, falling	Babinski's reflex, bilateral; adiadochokinesis and minimal ataxia	O.D., 2 d. O.S., 1 d. Incongruous left homonymous hemianopsia	Dilated lateral ventricles, lesion obstructing foramina of Monro (ventriculography)
8	M, 38	Occipital headache for 5 mo.	Negative	O.D., 3 d. O.S., 2 d.	Dilated lateral ventricles, lesion in third ventricle (ventriculography)
9	M, 15	Headache, diplopia, blurred vision, nausea, and vomiting	Negative	O.D., 6 d. O.S., 5 d.	Dilated lateral ventricles, lesion in third ventricle (ventriculography)
10	M, 35	Headaches, seizures, and diplopia	Babinski's reflex on left	O.D., 2 d. O.S., 3 d.	Dilated lateral ventricles, mass posterior to foramina of Monro (ventriculography)
11	M, 44	Occipital headache for 8 mo., visual blurring	Negative	O.D., 1 d. O.S., 2 d.	Dilated lateral ventricles, mass posterior to third ventricle (ventriculography)
12	M, 6	Headache, diplopia, nausea, and vomiting	Negative	O.D., 4 d. O.S., 4 d.	Dilated lateral ventricles, obstruction of foramina of Monro (ventriculography)
13	M, 45	Occipital headache, lethargy, loss of memory, automobile accident	Negative	O.D., 3½ d. O.S., 4½ d.	Dilated lateral ventricles, mass in third ventricle (ventriculography)

Routine roentgenograms of the skull were interpreted as completely within normal limits in 11 cases. The remaining two roentgenograms showed evidence of erosion of the sella turcica secondary to increased intracranial pressure. Air-contrast studies were performed in 12 cases. Ventriculography in nine of these revealed dilatation of the lateral ventricles and a lesion obstructing the anterior portion of the third ventricle and the foramina of Monro. Another patient merely showed dilated lateral ventricles with failure of the remainder of the ventricular system to fill. Pneumoencephalography in the remaining two cases revealed dilatation of the

lateral ventricles and obstruction of the third ventricle.

In the differential diagnosis of colloid cysts, other tumors of the anterior portion of the third ventricle were considered. A list of these include gliomas, suprasellar tumors, craniopharyngiomas, meningiomas, papillomas of the choroid plexus, parasitic cysts, ependymomas, and epidermoid tumors.[11-13]

Operative Procedures and Technics

Historical Review

The first successful removal of a colloid cyst was accomplished by Dandy[14] in 1921. Subsequently, he reported successful extirpation in four of five cases. Twenty surgical attempts with recovery in 16 were described by 1941 and served as the stimulus for the continued attack on these deeply situated growths.

Dandy advocated a posterior, parietal craniotomy for tumors that present posteriorly in the third ventricle. The cyst could be removed through the third ventricle which was entered after splitting the corpus callosum. Greenwood[8] has advised a frontal flap and the sectioning of the anterior portion of the corpus callosum. Particular care must be taken in this latter approach to avoid trauma to the anterior cerebral artery.

Cases Studied

In our series, a frontal craniotomy and an incision of the nondominant hemisphere were performed in all cases. Some authors have recommended an anterior block resection of cortex in the midfrontal gyrus to avoid direct trauma or involvement of the motor cortex secondary to postoperative edema. However, a linear incision of the frontal cortex and the gentle retraction of the external walls of the dilated lateral ventricle will permit adequate exposure. Rostrad from the choroid plexus toward the foramina of Monro, a smooth-walled, pearly gray or greenish cyst is encountered.[15] The cyst may be attached to the choroid plexus or to the terminal vein along the floor of the anterior horn of the lateral ventricle. Extreme care in traction is an absolute requirement to prevent hemorrhage from the choroid plexus or damage to the internal cerebral veins (veins of Galen). However, both the terminal vein and choroid plexus may be coagulated and sectioned without sequelae and thus facilitate the removal of the cyst. The manipulation of the walls of the third ventricle and hypothalamic structures with resultant respiratory and thermal aberrations must be avoided.[16]

If the cyst is large, the interventricular foramina may be enlarged by section of the anterior margin formed by the columns of the fornix. An alternative is to incise the cyst, aspirate its contents, and remove the remnants by applying gentle traction to the cyst wall. A small opening in the septum pellucidum will facilitate interventricular drainage if a blood clot or edema at the foramina of Monro ensues in the postoperative period. If at the time of ventriculography a catheter is not placed in the lateral ventricle, continuous drainage of ventricular fluid in the postoperative period may be ensured by doing so before closure of the skin flap. Drainage from catheter to a bottle, the neck of which is placed two or three inches above the level of the patient's head, should be utilized for several days after operation or until the ventricular fluid becomes free of blood. Administration of antibiotics and the use of 10 per cent formalin in the drainage bottle will lessen the danger of infection.

Postoperative edema can be treated with large doses of steroids (300 to 400 mg. of cortisone per day) or a single dose of 45 to 90 gm. of urea administered intravenously over a period of 30 minutes. Residua of the operative procedure may include transient hemiparesis, aphasia, and convulsive seizures.[17] The seizures may be treated with anticonvulsive drugs. A ventriculocisternal shunt may be necessary eventually if the circulation of the cerebrospinal fluid is not re-established in a normal fashion.

Results

The removal of a colloid cyst from the third ventricle of the brain can be a relatively simple neurosurgical procedure. Care must be taken to re-establish normal circulation of cerebrospinal fluid after removing the lesion; this care may include catheter drainage or a ventriculocisternostomy. As the frontal lobe is usually incised to gain entrance to the dilated frontal horn of the lateral ventricle, the possibility of postoperative convulsive seizures must be accepted as an

added risk; seizures develop about as often as would be expected after a lobotomy (approximately 10 per cent).

Seventy-five per cent of the patients operated on in the past 10 years for tumors of the third ventricle are living and well, and none have demonstrated any signs of major or minor convulsive seizures. The real risk is in not diagnosing the tumor early enough to complete the definitive treatment before irreversible brain damage has occurred.

Summary

The origin of paraphysial or colloid cyst of the third ventricle is controversial. Headaches of variable location and nature, nausea, vomiting, and papilledema associated with a paucity of abnormal physical and neurologic findings are most typical in patients with this growth.

In the 13 surgical cases that represent the total number of such cases at the Mayo Clinic from 1939 to 1962, the main complaints were headaches (not localized or uniform in nature), lethargy, blurred vision, nausea, and vomiting. Other factors that were noted were ataxia and dizziness.

The physical findings, in general, except for the ophthalmologic findings were within normal limits; choked disks were demonstrated in 12 of the 13 patients.

The neurologic examination revealed a paucity of abnormal findings. Some abnormality in the electroencephalographic findings was noted in nine of 10 cases, but no constant pattern was present.

Pneumoencephalography or ventriculography, in general, revealed the presence of the cysts; and frontal craniotomy, incision of the nondominant hemisphere, and careful removal of the cyst were the treatment of choice.

Seventy-five per cent of the patients operated on in the past 10 years for tumors of the third ventricle are living and well. The risk is lessened when the diagnosis is made early enough to complete definitive treatment before irreversible brain damage has occurred.

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12–17 will appear in the reprints or can be obtained from the author.

If you don't say anything, you won't be called on to repeat it. — Calvin Coolidge

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My constitution was destroyed long ago; now I'm living under the bylaws. —Clarence Darrow

Saints Cosmas and Damian

The cult of Cosmas and Damian is an ancient one, dating from the third century A.D. The twin brothers were natives of Arabia who went to Syria to study and practice medicine there together. Not only bodily ills, however, but those of the soul as well, yielded to their ministrations, always "in the name of Christ," with never a charge for their services. The basis for their solemn agreement never to accept remuneration was their literal interpretation of the Biblical injunction: "Heal the sick, cleanse the lepers, raise the dead, cast out devils: freely ye have received, freely give." "Provide neither gold, nor silver, nor brass in your purses." (Matthew 10:8–9)

On one fateful occasion, however, Damian weakened. When a women who had been cured by the brothers proffered money and was rejected, she later took Damian aside and pleaded with him to accept a fee "in the name of Christ," which he did.

When Cosmas learned of this, he repudiated his brother and refused to collaborate further with him in their practice. Later, however, when the extenuating circumstances of Damien's defection were explained to Cosmas, he forgave his brother and they again joined forces, working together until their final martyrdom at the instigation of Lysias, who had previously ordered the extermination of all Christians who refused to abrogate the One God and honor instead the pagan temple gods.

The brothers met their end by beheading, after several efforts to liquidate them by other barbarous methods, such as drowning, burning, stoning, and crucifixion, had been foiled through mysterious and inexplicable supernatural intervention.

Three hundred years after their death the Emperor Justinian, when ill, prayed to the two brothers and was cured; whereupon he rebuilt their old church at Constantinople, and in addition had constructed another larger, finer one in their memory, a gesture that renewed the Christians' devotion to the two martyred brothers. Also the transfer of their remains to Syria with burial there augmented their cult and established Syria as its center.

Cosmas and Damian are the patron saints of physicians and apothecaries, a distinction they share with Saint Luke, "the beloved physician."

Their commemoration date is September 27.

Congenital Disorders Linked to Chromosomal Abnormalities

As a result of large scale testing at the University of Minnesota Hospital, it has been shown by Dr. Jorge J. Yunis that patients suffering from various types of congenital disorders and leukemia have chromosomal abnormalities.

Chromosomal abnormalities have become the subject of research since the discovery in 1956 that there are 46 chromosomes in the human cell instead of 48 as previously believed. The first chromosomal abnormality was found in a case of mongolism.

Inflammatory Dermatoses

An Appraisal of Efficacy of



CARL W. LAYMON, M.D.*
HADLEY R. YOUNG, M.D.*
Minneapolis, Minn.

THE DEVELOPMENT of hydrocortisone represents one of the most important advances ever made in topical dermatologic therapy. Hydrocortisone is used more extensively than many newer steroid compounds because it is effective and much less expensive. It has been realized for a long time that hydrocortisone in a concentration of 1% works about as well as the medication in a concentration of 2½%. Furthermore, there is no danger of systemic reactions following the topical use of the drug. Oxytetracycline is a compound which has a broad topical action against a wide range of bacterial pathogens. The purpose of this study was to evaluate the therapeutic effects of an aerosol spray containing 1% hydrocortisone and 3% oxytetracycline-hydrochloride.**

H. M. Robinson, Jr., and his associates (1954)[1] treated 559 patients with various uncomplicated dermatoses and eruptions accompanied

*From the Department of Dermatology, Minneapolis General Hospital (Carl W. Laymon, M.D., Director) and the Division of Dermatology, University of Minnesota (Francis W. Lynch, M.D., Director).
**The trade name for the medication used in this study is Terra-Cortril spray. The material was furnished by Pfizer Laboratories, Division of Chas. Pfizer & Co., Inc.

by secondary infection, using hydrocortisone free alcohol or hydrocortisone acetate in combination with antibiotics including oxytetracycline, tetracycline, erythromycin, neomycin, neomycin-bacitracin-polymyxin. The addition of an antibiotic to ointments or lotions containing hydrocortisone did not alter the effect of the steroid and had the additional therapeutic advantage of combatting infection. The dermatoses which were treated included atopic dermatitis, dermatitis venenata, pruritus ani, pruritus vulvae, seborrheic dermatitis, and stasic dermatitis. No severe adverse reactions were noted which could be attributed to the application of the preparations, although 16 patients developed minor irritative phenomena. No true sensitization reactions were observed.

Leeder (1955)[2] reported the results of therapy with an ointment containing oxytetracycline and hydrocortisone in 54 patients with infected inflammatory dermatoses. The treatment proved highly successful in 90% of the cases and no unfavorable reactions were seen.

Hutner (1956)[3] used the same ointment as the sole therapy in 290 patients with various dermatologic disorders. The treatment was successful in 91% of all cases, and was particularly effective in atopic dermatitis, contact dermatitis, and neurodermatitis. Side effects which warranted withdrawal of therapy occurred in only one patient, and even minor undesirable effects of the ointment were rare.

Andelman and Nathan (1956)[4] treated 50 cases of cutaneous disease which were common in children with oxytetracycline-hydrocortisone (Terra-Cortril) ointment. In 96% there was distinct improvement and there were no untoward reactions to the treatment.

Miller (1956)[5] used the same preparation for the treatment of 84 patients, most of whom had dermatitis venenata, atopic dermatitis, or other eczematous eruptions. He concluded that Terra-Cortril ointment was an excellent medication in these disorders because the treatment was effective in 87%.

Welsch and Ede (1956)[6] treated 170 patients who had infected dermatoses with oxytetracycline-hydrocortisone ointment. In 128 the preparation not only controlled infection but produced improvement of the underlying disorder. There was local irritation in five patients, but there were no systemic effects from either the antibiotic or the steroid.

Lubowe (1956)[7] used Terra-Cortril ointment in 44 patients with dermatoses having concomitant bacterial infection. There was clinical cure in 57% of the patients and clinical improvement in all of the rest. The author claimed that there were no therapeutic failures in his series, although many of the disorders were of long duration and had not responded to other local therapy. There were no systemic effects, although one patient developed topical hypersensitivity to oxytetracycline.

Niedelman (1957)[8] treated 104 patients with allergic or infectious lesions of the skin, and 89% were benefitted by topical treatment with hydrocortisone and oxytetracycline. The author thought that the treatment was exceptionally safe since no side reactions occurred from either the hydrocortisone or the oxytetracycline.

McAusland (1961)[9] treated 54 patients with leg ulcers, selected at random, with an aerosol spray containing oxytetracycline and hydrocortisone. He claimed that the spray cured the lesions in 79% of the cases which had not responded to other forms of treatment. He emphasized that efficient bandaging to give tight compression evenly from toes to knees was an essential part of any topical therapy for leg ulcers.

Schubert (1961)[10] treated 121 patients with various dermatoses, using oxytetracycline-hydrocortisone (Terra-Cortril) spray. He concluded that it was easy to use and that it exerted a quick antiphlogistic, antipruritic, antiallergic, and antimicrobial effect.

Lyng (1961)[11] used the spray in 40 patients who had eczema, impetigo, epidermophytosis of the feet, intertrigo of the groin, and stasic ulcers. He thought that it was an excellent adjunct in the treatment of those dermatoses.

Beume (1961)[12] reported excellent results with Terra-Cortril spray in the treatment of one patient with third degree burns of the lower extremities, and two with severe ulcers of the leg.

Barefoot (1959)[13] used a powder containing a mixture of oxytetracycline-hydrochloride and polymyxin-sulfate in 5691 patients for preventing

or combatting bacterial infection and found it effective. He reported later (1962)[14] on over 11,000 patients treated with the powder and stated that there was not a single instance of eczematous dermatitis from the topical use of oxytetracycline-hydrochloride or polymyxin-sulfate. He thought that sensitization to this product was virtually nonexistent.

Experience with Spray

The medication, which contains 1% hydrocortisone and 3% oxytetracycline, is supplied in 2-ounce cans regulated to dispense approximately 2.5 mg. of oxytetracycline-hydrochloride and 0.833 mg. of hydrocortisone during each second of spraying time (approximately 120 seconds of spraying time per can*). One second of spray time should be allowed for each six square inches of surface to be sprayed. The patient is instructed to shake the spray can gently once or twice before applying the medication. The aerosol container is held approximately six inches from the affected area and each portion of the area to be treated is sprayed for one or two seconds. The lesions may be sprayed two to several times daily. Inhalation of the spray should be avoided. The manufacturers state that the use of oxytetracycline, as of other antibiotics, may result in an overgrowth of resistant organisms — particularly monilia and staphylococci. In this series such a reaction was not encountered. The preparation stained the skin yellow, but this did not seem to be an objectionable feature if the patients sprayed the areas lightly as instructed, as the yellow color can be easily washed from the skin or clothing. It seemed to us that in many instances the patient actually liked the yellow discoloration, since there was visible evidence that the medication was being applied to the diseased area.

In the present study 125 patients with various inflammatory and infected dermatoses were treated with oxytetracycline-hydrocortisone spray. Twenty five of these cases represented a double blind study in which neither the patient nor the physician knew whether active medication or placebo spray was being dispensed. The results of the study are summarized in the 3 following tables:

*Since this study has been completed, polymyxin B sulfate in a concentration of 100,000 units per can has been added to increase the effectiveness of the medication against gram negative organisms.

TABLE 1
Results of Controlled Study

Diagnosis	No. of Patients	Spray Definitely Beneficial	Spray Moderately or Questionably Beneficial	Eruption Unimproved or Aggravated
Contact Dermatitis (Various causes)	55	38 (70%)	10 (17%)	7 (13%)
Atopic Dermatitis	9	2 (20%)	4 (45%)	3 (35%)
Impetigo Contagiosa	4	4 (100%)		
Intertrigo	10	6 (60%)	4 (40%)	
Foliculitis	8	5 (64%)	2 (24%)	1 (12%)
Vesicular Dermatophytosis	14	3 (36%)	6 (43%)	5 (21%)
Total	100	58	26	16

Percentages are approximate

TABLE 2
Double Blind Study Active Spray

Diagnosis	No. of Patients	Spray Definitely Beneficial	Spray Moderately or Questionably Beneficial	Eruption Unimproved or Aggravated
Contact Dermatitis (Various causes)	7	4 (57%)	1 (14%)	2 (29%)
Atopic Dermatitis	1	1 (100%)		
Impetigo Contagiosa	2	2 (100%)		
Intertrigo	3	2 (67%)	1 (33%)	
Folliculitis	1		1 (100%)	
Vesicular Dermatophytosis				
Total	14	9 (64%)	3 (21%)	2 (14%)

Percentages are approximate

TABLE 3
Double Blind Study Placebo Spray

Diagnosis	No. of Patients	Spray Definitely Beneficial	Spray Moderately or Questionably Beneficial	Eruption Unimproved or Aggravated
Contact Dermatitis (Various causes)	5		2 (40%)	3 (60%)
Atopic Dermatitis	3			3 (100%)
Impetigo Contagiosa	1		1 (100%)	
Intertrigo	2			2 (100%)
Folliculitis				
Vesicular Dermatophytosis				
Total	11		3 (27%)	8 (73%)

Percentages are approximate

Comment and Summary

Various cosmetics such as perfumes, dyes, deodorants, etc., have been sprayed on the skin and hair for many years. Active medications, however, have been used only recently. In this series of patients, oxytetracycline-hydrocortisone aerosol spray was more effective in acute inflammatory, exudative disorders than in subacute or chronic dry lesions, since it has a drying rather than a lubricating effect. It is especially useful in moist lesions where emollient action is not desired. The spray is effective in intertriginous lesions because no maceration is produced, and it is valuable in hairy areas where greasy preparations are tolerated poorly. The use of the medication is simple and the cost is quite economical compared to that of some of the other steroid-antibiotic combinations. Neither adverse systemic nor topical reactions were encountered following the use of oxytetracycline-tetracycline spray.

On the basis of experience with the use of the medication in 125 cases, we believe that it is a useful adjunct in the treatment of inflammatory dermatoses, especially when they are complicated by secondary bacterial infection. In the controlled study of 100 cases the medication was definitely beneficial in 58%, moderately beneficial in 26%, and in only 16% was the eruption unimproved or aggravated. In the double blind study 14 patients received the active spray. The results approximated those of the controlled study: definite benefit in 64%, moderate improvement in 21%, and no improvement or aggravation in 14%. In 11 other patients in the double blind study who received the placebo, there was no instance of definite benefit, moderate or questionable benefit in 27%, and no improvement or aggravation in 73%.

Thus there is adequate evidence, on the basis of this and other studies, to regard oxytetracycline-hydrocortisone spray as an effective preparation in the treatment of selected inflammatory dermatoses, especially when they are complicated by secondary bacterial infection.

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Glimpse into Fifteenth Century Pediatrics

Fifteenth century pediatric literature recommended that the wet nurse be selected with careful consideration as to her physique and character and also advised as to her daily regimen: her diet, rest, and sexual practices.

On the basis of the following excerpt one wonders how many fully qualified wet nurses were available during the late Medieval and early Renaissance periods and how many suckling infants were fortunate enough to enjoy the services of such.

"At times it happens that from various causes the Mother cannot suckle the child herself. In such a case one must choose a nurse for the child. Her qualifications should be as follows. The nurse must be of shapely stature, not too young and not too old. She must at all times be free from illness of eyes or body. Moreover, her nature must be such that there is no defect in her body. Mark also, that she must be neither too slim, nor too plump. If there should be any defect in her, the child would incline towards it. She must have a good character, modest, chaste and clean. Her food should be in conformity with the following directions, so that the milk may remain fully nourishing. I prescribe her to eat white bread and good meat, also rice and lettuce every day. Almonds as well as hazelnuts she should not do without. Her beverage must be a pure wine; and moderation must be used in bathing. Nor must she do much labor. In case her milk should give out, she must not forget to eat peas frequently and in quantity, also beans, and in addition gruel which should be boiled in milk beforehand. She must also rest and sleep a good deal so that the child may thrive on the milk. Moreover, she must carefully avoid onions and garlic; as well as any bitter or sour food and any dish containing pepper. She must eat no over-salted food, nor anything prepared with vinegar. Love's intercourse she must also avoid or go in for it very moderately. For in case she should become pregnant, her milk would be harmful to the child. In order that the child may not be harmed in such a case, one must wean it from the milk."

The above is quoted from "Devils, Drugs, and Doctors" by Howard W. Haggard, M.D., who in turn quotes from Ruhrah's "Pediatrics of the Past," translated from an early German work, "Versehung des Leibs."

IT'S THE LAW

Physicians Required To Report Child Beatings

An amendment to Minnesota Statutes 626.52 which was passed by the 1963 session of the Minnesota legislature now requires that beatings or similar treatment of minors, under the age of 16 years, be immediately reported to proper police authorities. In view of the fact that this law affects members of the Minnesota State Medical Association physicians are urged to acquaint themselves with its requirements which are as follows:

An Act

Relating to the reporting of certain wounds by persons engaged in healing practices and related activities: Requiring the reporting of wounds or evidence of wounds appearing to arise from the beating or similar maltreatment of minors: Amending Minnesota Statutes 1961, Section 626.52

Be It Enacted by the Legislature of the State of Minnesota:

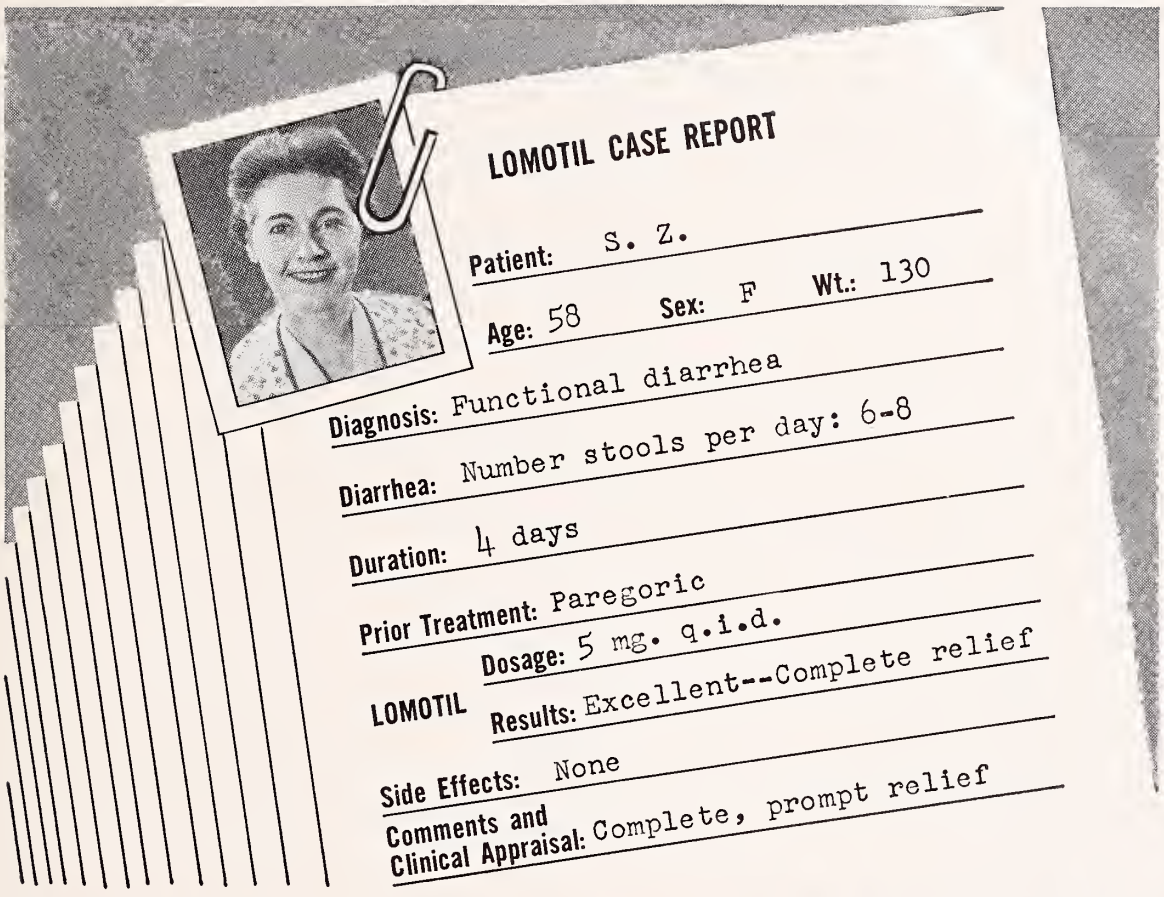
Section 1. Minnesota Statutes 1961, Section 626.52, is amended to read:

626.52 (Physicians and Other Aids to Healing to Report Certain Injuries or Wounds). Every physician, every surgeon, every person authorized to engage in the practice of healing, every superintendent or manager of a hospital, every nurse and every pharmacist, whether such physicians, surgeons, persons engaged in the practice of healing, superintendent or manager of any hospital, nurse and pharmacist be licensed or not, shall immediately report to the proper authorities, as herein defined, all bullet wounds, gun-shot wounds, powder burns, or any other injury arising from, or caused by the discharge of any gun, pistol, or any other firearm, which wound he is called upon to treat, dress, or bandage. Every person required to report such wounds shall, in the same manner as required for the reporting of gunshot or similar wounds, report injuries or evidence of injuries appearing to arise from the beating or similar maltreatment of any minor under the age of 16 years, whose injuries the person is called upon to treat, dress or bandage. No such report shall be made the subject matter or basis for any suit for slander or libel.

Section 2. This act takes effect on June 30, 1963.

A form of ambiguity occurs when it is reasonably clear that what is said says nothing. — William B. Bean, M.D.

His frantic friends arranged to smuggle him out asking, "Are you not ashamed to pursue money . . . and give no thought to truth and understanding and the perfection of your soul?" — Socrates



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Hock[2] obtained "results superior to prior medications in 68.3 per cent of 41 patients."

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Lomotil is an exempt narcotic, its abuse liability being comparable to that of codeine. Recommended dosages should not be exceeded. Side effects are relatively uncommon but among those reported are gastrointestinal irritation, sedation, dizziness, cutaneous manifestations, restlessness and insomnia. Lomotil should be used with caution in patients with impaired liver function and in patients taking addicting drugs or barbiturates. Lomotil is brand of diphenoxylate hydrochloride with atropine sulfate; the subtherapeutic amount of the latter is added to discourage deliberate overdosage.

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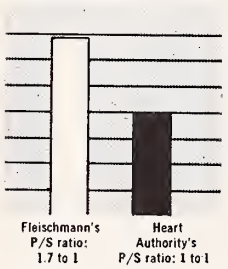
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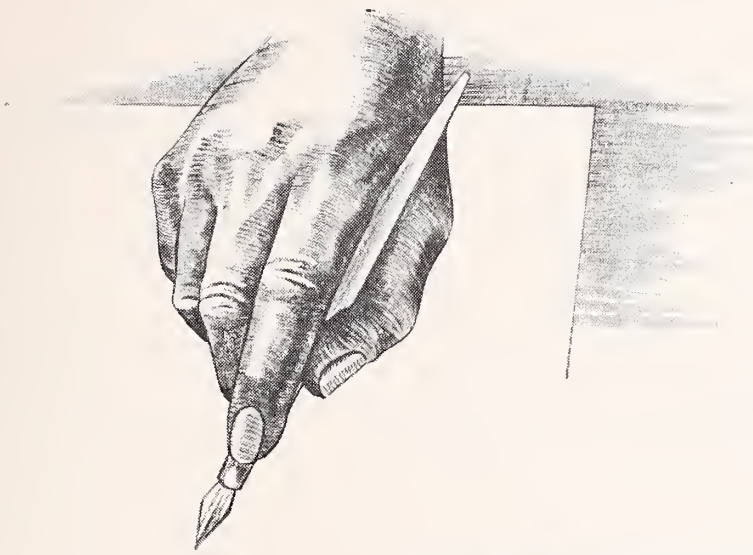


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*"The Regulation of Dietary Fat," Council on Foods and Nutrition of the American Medical Association. J.A.M.A., Vol. 181, No. 5 (August 4, 1962).



EDITORIALS

Trends in the Surgical Treatment of Hypertrophic Breasts

Over the years plastic surgeons have devised and modified various operations to correct pendulous and hypertrophic breasts. The first procedures described by Biesenberger, Lexer and others consisted essentially of segmental resection of a quadrant of breast tissue leaving a pedicle to provide the blood supply to the nipple. This type of procedure had the advantages of preserving the areola and the function of the mammary gland. However in the case of markedly hypertrophic breasts with wide resection of tissue, the blood supply to the nipple was jeopardized. Other surgeons reported slough of skin flaps in a high percentage of cases. Many of these patients required secondary revision of their breasts for cosmetic reasons. As a result, Hans May and other plastic surgeons advocated segmental resection with preservation of the nipple on a pedicle only when dealing with medium-size and fairly large breasts. Because of these problems and with the advances in the technic of grafting, other procedures have been proposed. W. M. Adams is generally credited with describing the technic of free transplantation of the nipple, areola and erectile tissue in 1944. This led to the various methods of partial breast amputation combined with transplantation of the nipple as a free graft. It was soon discovered that the nipple grafts regained sensation and erectile function in the great majority of patients. Of course, the function of lactation is lost following amputation of breast tissue but operation is seldom refused for this reason.

Appearing in the July issue of this journal is a discussion of pubertal hypertrophy in particular by Dr. John Erich. His article includes three illustrative cases of total removal of breast tissue and reconstruction with flaps of skin and fat based on a technic by Maliniac. A further variation of this procedure by Longacre consists of total or prophylactic resection of all mammary tissue and construction of smaller but more acceptable breasts. These would have double "powder horn" pedicles of derma and fat from both lower quadrants, anchored to the pectoral fascia in conjunction with free nipple grafts.

As an aid to symmetrical planning of breast reduction, Wise in 1956 suggested the use of a commercial brassiere from which patterns are made. In his experience reduction of breast volume by more than two brassiere sizes is unsafe when using the nipple transposing procedure. The question as to which procedure is best is difficult to answer, because this kind of operation must be tailored to the patient. Also, the choice will depend upon the past experience and personal preference of the surgeon.

Walter L. Lynn, M.D.

Minneapolis, Minnesota

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M.M.

The Physician's Role in Terminal Illness and Death

No one who has not experienced death personally can speak with authority about it, and no one who has experienced death can talk about it at all. Therefore, anything we physicians can say must be based on observations of others prior to death and is invariably colored by our own personal feelings about death.

I doubt that anyone actually believes he will never die; but I think a great many people have difficulty accepting the inevitability of death. The idea of nonexistence is either too inconceivable or too threatening for complete acceptance. Yet because of the physician's frequent exposure to death, it is very important for him to critically examine and resolve his own conflicts toward it.

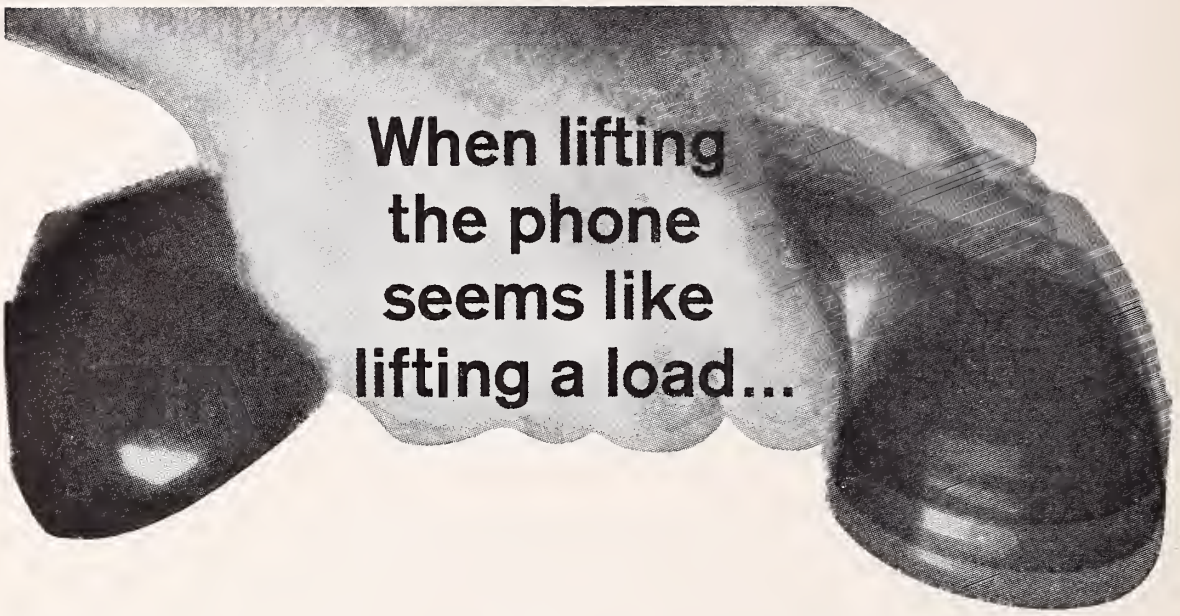
There was a time when life was defined in terms of the beating of the heart and the continuance of breathing. Now with the "heart-lung" mechanism, this definition has become obsolete. Even decerebrate preparations can be kept "alive" for a length of time. In fact, with cardiac pacemakers, extrinsic temperature control, respirators, intravenous nutrition, vasopressors, and artificial kidneys, a body can be kept functioning long after the natural course of events would have resulted in "death." This is functioning on a mere cellular level, no higher than can be achieved in a tissue culture.

Human life, I think, has to be defined in more complex and intangible terms, such as coherent mentation, personality, and ability to communicate. Yet, since this definition raises problems in regard to the severely retarded or the grossly psychotic, the definition must be more inclusive. This, however, is another problem in itself over which philosophers have pondered for centuries.

In contrast to the certainty and finality of death, our hold on life is exceedingly tenuous and insecure from hour to hour. The primary difference between the patient with the terminal illness and his physician is not that one is going to die and the other is not, but rather a question of when they are both going to die relative to each other in time. The terminal patient usually has a slightly better idea of the limits of his remaining time than has the physician of his own, all things being otherwise equal. But the fact is that all things are not equal and the patient might well outlive the physician, considering that doctors also die from such things as accidents and sudden fatal illnesses.

The fact is that death does occur and we are repeatedly faced with the question: how long and how heroically are we to attempt to defer death when there is no reasonable hope for recovery. Some maintain that as long as cellular life remains, it is the doctor's obligation to preserve it as long as possible; others contend that all life-prolonging measures should be discontinued when the patient has reached the stage where either suffering or irreversible unconsciousness makes the prolongation of life either purposeless or cruel. Watching a *loved one* continue to suffer when repeated supportive or even drastic measures are required to keep him alive can be a heartbreaking ordeal, aside from the very substantial expense such measures can incur.

The most controversial aspect of terminal illness, however, is probably whether or not to tell a patient that he has a fatal disease with a sharply limited life expectancy. I think there are several basic factors involved here, one of which is a policy of honesty. If the patient asks you about his condition, are you going to lie or tell the truth? If you lie, you betray not only the patient's trust in you but also the family's confidence in your moral integrity. Further, by withholding the truth you also deprive the patient of the opportunity to settle with due deliberation any urgent social, financial, or religious matters. Moreover, being uninformed



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ISUPREL (isoproterenol/Winthrop) "...can increase breathing efficiency in pulmonary emphysema."[1] The patient with chronic obstructive pulmonary disease "...should use the bronchodilator four times daily whether or not he experiences episodes of bronchospasm."[2]

Use of the Mistometer eases breathing by relaxing bronchospasm, and aiding productive cough. "Of the aerosol bronchodilators, ISUPREL (isoproterenol/Winthrop) seems to be the best...."[3] Conscientious use q.i.d. improves vital capacity and exercise tolerance.

The Mistometer brings new efficacy and convenience—enables patients to maintain treatment wherever they are.

With use of ISUPREL (isoproterenol/Winthrop), occasionally tachycardia, palpitation, nervousness, nausea and vomiting or headache may occur, especially with excessive dosage. Adjust dosage carefully in patients with hyperthyroidism, acute coronary disease, cardiac asthma or limited cardiac reserve, and in persons sensitive to sympathomimetic amines.

Caution: Epinephrine should not be administered with ISUPREL (isoproterenol/Winthrop) as both drugs are direct cardiac stimulants and their combined effects may induce serious arrhythmia. If desired they may, however, be alternated, provided an interval of at least four hours has elapsed.

Dosage: Two inhalations at least one minute apart four times daily, regularly. Inhalations may be taken more often if indicated.

Available as ISUPREL HCl (isoproterenol HCl/Winthrop) Mistometer—single unit combining plastic nebulizer and ISUPREL (isoproterenol/Winthrop) solution 1:400—or 0.25 per cent w/w (=2.8 mg. per ml.), and includes alcohol, 33 per cent; bottles of 15 ml.



1. Reeves, J. E.: *M. Times* 90:512, May, 1962. 2. Williams, M. H., Jr.: *M. Sc.* 11: 433, March 19, 1962. 3. Peckenschneider, L. E.: *J. Kansas M. Soc.* 56:486, Sept., 1955.

Winthrop Laboratories, New York 18, N.Y.

Winthrop

about his real condition and noting his failure to improve, he may even begin shopping around for other medical care.

Also to be considered is the burden placed on the family, if they have been informed of the truth and the patient has not. The quotation, "what a tangled web we weave, when first we practice to deceive," is only too applicable to this situation. Both the family and the doctor find they must compound the lie over and over again in their attempt to keep the truth from the patient.

Now what about the patient who does not ask his diagnosis or does not seem to want to know? Most likely he already strongly suspects but is afraid to face the truth. Does this relieve the doctor of his responsibility to inform the patient?

There are those who say the patient cannot stand the shock of being told that he has a fatal illness and is going to die. But this, I think, depends on the way he is told and on the assurance there is still hope. One can always honestly extend hope; for even though there may be little at present to offer, new developments are constantly occurring which may completely change the prognosis. As far as shock is concerned, a certain degree of adverse reaction is only natural. On the other hand, the patient may refuse to accept the diagnosis and may utilize the defense mechanism of denial, in which case there is little you can do; at least you have discharged your responsibility.

In any case, I do not feel that knowing the truth can be any harder on the patient than the fear of the unknown and the uncertain. Once he knows the truth, you can help him adapt to it by discussing frankly and honestly what he can expect and what can be done to aid and comfort him during the final interlude. For someone who thinks he has a certain commodity in unlimited supply, the individual units have relatively small value; however, when the supply is sharply limited, each unit takes on a much greater value. This analogy can be well applied to the person with terminal illness, because once he realizes his days are numbered, there is at least the potential that he can utilize each day to its fullest within the context of his value system.

Leland Christenson, M.D.

Maple Plain, Minn.

Letter to the Editor:

I have been admiring the appearance, content and general makeup of Minnesota Medicine and on occasion I have been tempted to drop you a note to pay my respects to the truly superior editorial job which you and your associates are doing. Unfortunately, some of us don't get around to such communication until we also have a problem or a suggestion to pass along. That is the situation I find myself in today.

Specifically, I am wondering if medical journals such as Minnesota Medicine and others are not gradually getting out of step with the times in their continued acceptance of cigarette advertising. Not only is there an increasing body of knowledge which conclusively associates cigarette smoking with the rising incidence of lung cancer, cardiovascular disease, and pulmonary emphysema, but there is a growing awareness by the public that this association exists, and their awareness is understandably giving increasing concern to the cigarette companies. For us as doctors to ignore this mounting evidence and to continue to encourage the habit of smoking through acceptance of cigarette advertising in

blood, milk and Maalox®

(magnesium-aluminum hydroxide gel)

Practically standard treatment, now, for perforated ulcer. Why is Maalox included? Antacid therapy *must* continue long after the wound has healed, and patients started on Maalox tend to stay on Maalox. It tastes good; it's effective and will not cause constipation—three important reasons for Maalox over the long haul. Some physicians, we are told, order Maalox routinely for hospital patients on drugs which could irritate. They feel it reduces the likelihood of gastric discomfort. Supplied: Suspension; Tablets No. 1; Tablets No. 2. (Each Maalox No. 1 Tablet is equivalent to 1 teaspoonful and each Maalox No. 2 Tablet is equivalent to 2 teaspoonfuls of Suspension.)



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our professional publications is sooner or later going to put the entire medical profession in a curious light with the public.

The evidence indicating cigarette smoking as a major health hazard is so overwhelming that it is only a matter of time until it can no longer be ignored or resisted. Currently 100,000 lives are lost annually because of lung cancer, coronary heart disease and emphysema, all attributable to the smoking of cigarettes. How we as doctors of medicine can justify our part in the promotion of so lethal a habit is quite beyond my comprehension. The fact that lay organizations such as the American Cancer Society, the American Heart Association and the National Tuberculosis and Health Association have had to take the lead in drawing public attention to the dangers of smoking is a shameful reflection on the medical profession.

All of us stand to lose if we deliberately blind our eyes and ears to the facts and avoid the forthright action which the American public expects, and has a right to expect, from the profession which bears responsibility for safeguarding and promoting the health of our citizens.

Earl T. Opstad, M.D.
Ass't. Med. Director,
Northwestern National Life Insurance Co.

Editor's Note: We thank you for your interest. You will be happy to know that the Board of Editors endeavoring to practice what they preach have unanimously voted against the use of cigarette advertising in Minnesota Medicine.

The Doctors' Photographic Society

The Doctors' Photographic Society has provided a set of color photographs for the ensuing year. Each month a new photograph will appear on the cover. These represent prize-winning pictures composed and taken by physicians. Any physician is eligible to membership in the Doctors' Photographic Society and whether or not he is a member, he is eligible to present a photograph for judging.

Thirty-five millimeter color transparencies are preferred though larger transparencies can be used. There is no limitation on subject material, but the picture must have been composed and taken by a physician. Members wishing to join the Doctors' Photographic Society may make application by writing to Elmer J. Martinson, M.D., 317 E. Wayzata Boulevard, Wayzata, Minnesota. Dues are $5.00. President is Charles H. McKenzie, M.D. Vice president is Manougher Azad, M.D. Meetings are held the last Monday of each month at Leigh's, 123 South 7th Street, Minneapolis.

There are three marks of a superior man: being virtuous, he is free from anxiety; being wise, he is free from perplexity; being brave, he is free from fear. — Confucius

The men behind the man...

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Curbstone Consultation

Babinski Reflex

QUESTION: Is it possible to fake a Babinski reflex? *M. D., Rochester*

ANSWER: It is possible for a person who is familiar with the details of a Babinski reflex to produce a false positive result providing that he can overcome the withdrawal reflex.

Diphtheria-Tetanus

QUESTION: What is the route for giving diphtheria-tetanus combined to individuals after the age of 40 years? *M.D., Minneapolis*

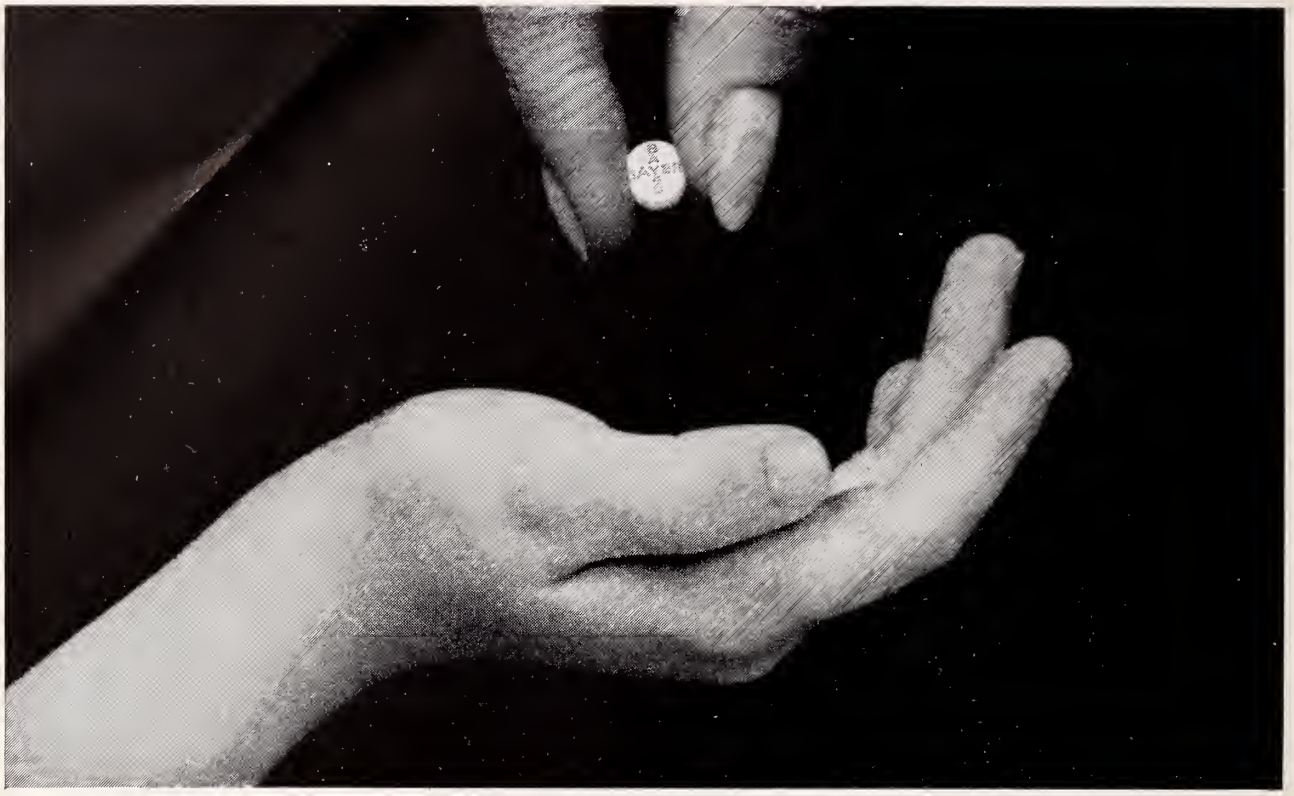
ANSWER: Diphtheria-tetanus toxoids combined is available in a special preparation for adult use and is given intra-muscularly. The recommended schedule consists of two injections of 0.5 c.c., one to six months apart, followed by a booster injection every five years.

Heart Attacks

QUESTION: Can persons who have had heart attacks return to moderately hard work?

ANSWER: About two-thirds of all patients who have had a heart attack are able to go back to their original degree of physical activity — or to a schedule a little below. Nevertheless, it is inadvisable to allow any person who has had a heart attack to return to an extremely strenuous occupation — anything for instance, that requires heavy lifting, straining or a great deal of hurry.

It is interesting to note that much has been learned about energy requirements of different types of occupations. Many of the positions that were formerly considered to have great energy requirements have been found to be much less demanding than originally thought. Nowadays, many factory workers spend much less energy per day than the average housewife. Dr. Ernstene



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The dosage is 1¼ grains per tablet. Mothers place such confidence in the Bayer name. And the new orange flavor is so fresh and smooth that children take it readily. (The grip-tight cap on the bottle helps keep them from taking it on their own.)

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Tumor Conference

Metastatic Carcinoma of the Breast

The practicing physician in his care of the patient with metastatic carcinoma of the breast first strives to provide relief of pain, second, restoration of some semblance of good general health, and third, possible regression of the tumor itself. To achieve these goals he utilizes hormonal therapy, radiation therapy, chemotherapy, and surgery. Although the staging of these therapeutic methods is variable, it is generally agreed that removal of estrogen in the premenopausal patient and addition of estrogen to the postmenopausal patient are of prime importance. Recently, in two remarkably contrasting cases, these goals were satisfactorily achieved.

Case 1.

G. S., a 48-year-old female, was admitted to the Minneapolis General Hospital on March 18, 1961, both chronically and acutely ill. She was quite dyspneic, with respirations of 60 per minute and a pulse rate of 160. Her entire left breast was replaced by tumor and there were hard fixed nodes in the axilla. A chest X ray revealed extensive bilateral opacities filling both lung fields and a biopsy of the breast mass showed adenocarcinoma. In 1954 she had had a hysterectomy and right oophorectomy.

It was the consensus of the *Tumor Conference* that this patient might still have significant release of estrogenic hormones from the left ovary. Consequently, utilizing spinal anesthesia on March 24, 1961 her left ovary was removed. In the subsequent postoperative days a dramatic response occurred in the patient's general condition. A chest X ray taken ten days later revealed some improvement in the opacifications.

She was discharged home on April 10, 1961. Her improvement continued and she again resumed her household chores. On December 28, 1961, her chest X ray revealed no opacity indentifiable as a metastasis and her breast lesion was shrunken and sclerotic. In April of 1962 she developed back pain and lesions were seen in the 8th and 12th dorsal vertebrae on X ray examination. Relief was obtained with 2510 r. of radiation to this area. When last seen on March 20, 1963, she was wearing a back brace but feeling well. Her chest X ray has remained unchanged.

Case 2.

A. B., an 86-year-old female, was admitted to the Minneapolis General Hospital on August 4, 1961, with bilateral bronchopneumonia. She weighed 78 pounds. In addition to pneumonia she had a fungating, moist tumor of the right breast which had been progressing in size over the preceding several years. There were two large axillary nodes present and the exophytic portion of the tumor measured 3¼ by 1⅞ inches and projected two inches out from the skin edge. A biopsy revealed adenocarcinoma.

Her pneumonia responded well to antibiotic therapy, and she was presented to the *Tumor Conference*. It was felt that since she was well beyond the age where one might expect ovarian function, the tumor might regress with the institution of estrogen therapy. She was started on

Continued



Both the Cream and Ointment rarely sensitize and are bactericidal to virtually all gram-positive and gram-negative organisms found topically, including Pseudomonas aeruginosa and Staphylococcus aureus.

Indications: Wherever infection occurs and is accessible for topical therapy.

Caution: As with other antibiotic preparations, prolonged use may result in overgrowth of nonsusceptible organisms, including fungi. Appropriate measures should be taken if this occurs.

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Ingredients: Each gram contains: 'Aerosporin'® brand Polymyxin B* Sulfate 10,000 Units; Neomycin Sulfate 5 mg. (equivalent to 3.5 mg. Neomycin Base); Gramicidin 0.25 mg.

In a smooth, white, water-washable vanishing cream base with a pH of approximately 5.0. Inactive ingredients: liquid petrolatum, white petrolatum, distilled water, propylene glycol, polyoxyethylene polyoxypropylene compound, emulsifying wax and 0.25% methylparaben as preservative.

*U.S. Patent Nos. 2,565,057-2,695,261

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Ingredients: Each gram contains: 'Aerosporin'® brand Polymyxin B Sulfate 5,000 Units; Zinc Bacitracin 400 Units; Neomycin Sulfate 5 mg. (equivalent to 3.5 mg. Neomycin Base).

Available: Tubes of 1 oz., ½ oz. and ⅛ oz.

Complete literature available on request from Professional Services Dept. PML.

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Stilbestrol 5 mg. three times daily. There was slow but progressive improvement in her general health, and when last seen in April of 1963 her weight was 110 pounds; she looked and felt quite well; and the tumor had diminshed to 1⅜ by 1⅜ inches. It projected only ½-inch from the skin edge and was dry and sclerotic.



Case 1 before oopherectomy



Ten days after oopherectomy

Beatson,[1] in 1896, initiated the ablative era of therapy for metastatic carcinoma of the breast, when he performed an ovariectomy on a 33-year-old female. It was forty-eight years later that Haddow[2] described the beneficial result that could be obtained with estrogen supplements to the postmenopausal patient with this disease. At the present time our initial form of therapy in these patients is either ablative or supplemental in regard to estrogen, depending largely on our estimate of their ovarian function, recognizing that a significant output of estrogen from the ovaries may continue for several years into the postmenopausal period.

Some evidence of estrogen activity can be obtained by an evaluation of the vaginal smear.

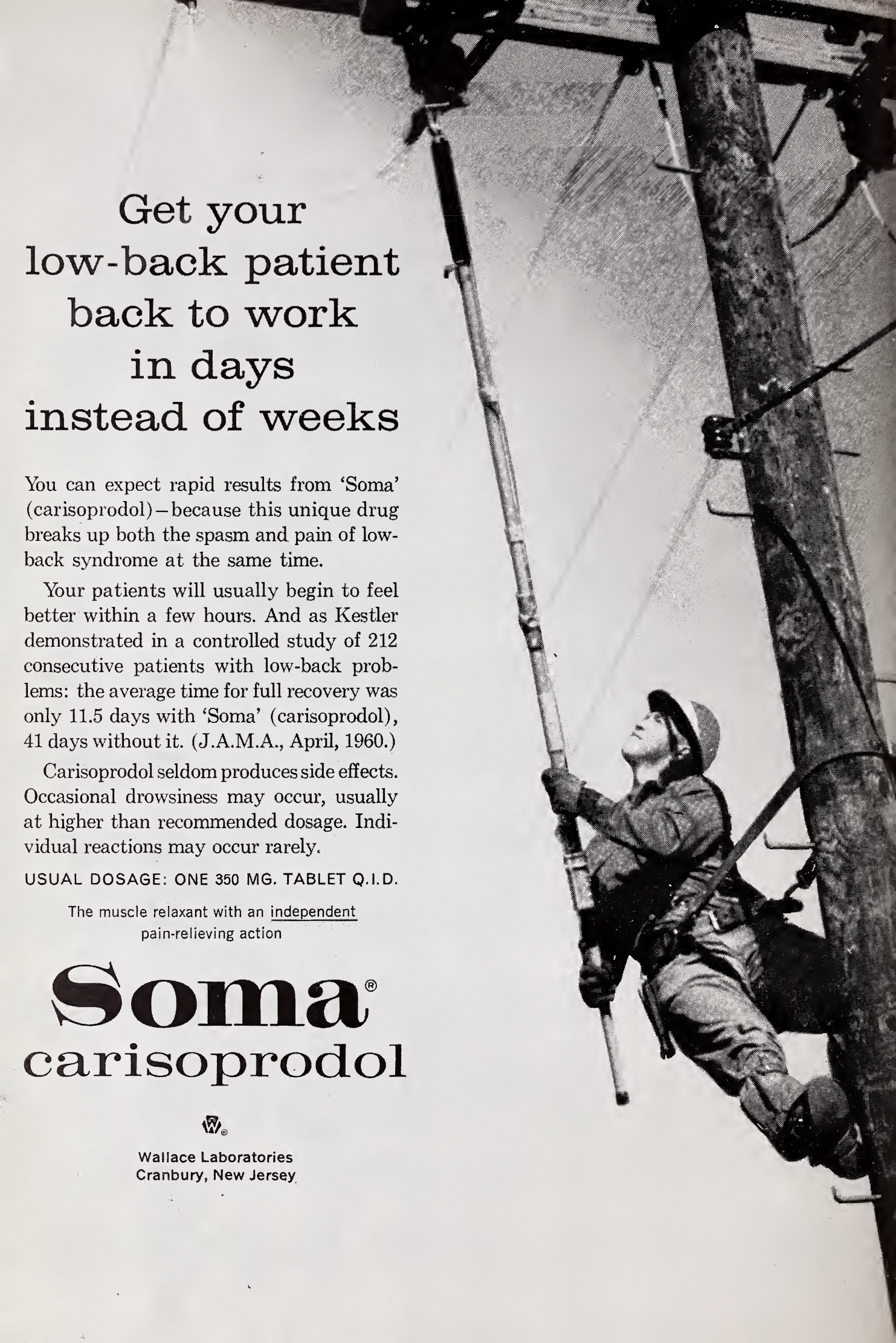
Harrison H. Farley, M.D.

Minneapolis General Hospital

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1. Beatson, G. T.: On Treatment of Inoperable Carcinoma of the Mammae: Suggestions for a New Method of Treatment, with an Illustrative Case. J Lancet 2:104 and 162, 1896.

2. Haddow, A., Watkinson, I. M., and Paterson, E.: Influence of Synthetic Oestrogens Upon Advanced Malignant Disease. Brit Med J 2:393, 1944.



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You can expect rapid results from 'Soma' (carisoprodol)—because this unique drug breaks up both the spasm and pain of low-back syndrome at the same time.

Your patients will usually begin to feel better within a few hours. And as Kestler demonstrated in a controlled study of 212 consecutive patients with low-back problems: the average time for full recovery was only 11.5 days with 'Soma' (carisoprodol), 41 days without it. (J.A.M.A., April, 1960.)

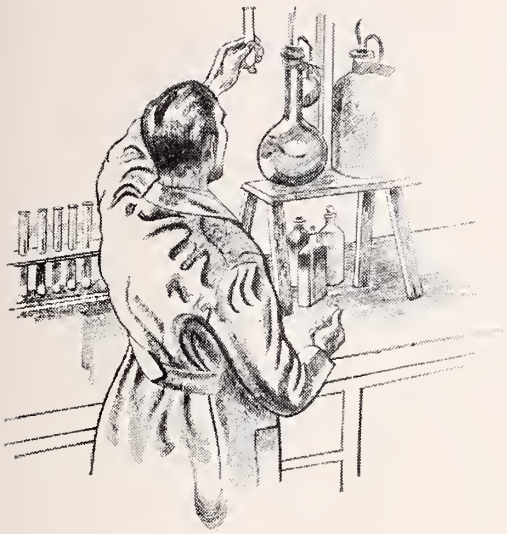
Carisoprodol seldom produces side effects. Occasional drowsiness may occur, usually at higher than recommended dosage. Individual reactions may occur rarely.

USUAL DOSAGE: ONE 350 MG. TABLET Q.I.D.

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Clinical Path Conference

Cerebellar Ataxia

A 64-year-old farmer first had been seen at the Mayo Clinic in 1938, and asthmatic bronchitis had been diagnosed at that time.

In 1958, he had become aware of a nocturnal aching in the calves of both legs, mainly the left. In addition, his lower limbs had felt "stiff," an expression which apparently referred to a tendency to drag his toes. As time passed, he had experienced further difficulty in walking, characterized by stumbling and a feeling that he was uncertain just where to put his feet. These symptoms had continued unchanged throughout 1959, when, in addition, he began to fall occasionally, either to the right or to the left.

Early in 1960 his wife had noticed that he was having definite trouble in walking, and, because of his increasing propensity to stumble, he began to use a cane. He gradually curtailed his walking habits and became especially fearful of walking in the dark. No paresthesia or impairment of sensation was noted, however. In addition, his vision began to disturb him; while reading, the words seemed to "fade out" towards the end of the line. He was unaware of any diplopia or ptosis.

During the summer of 1960 increasing constipation became apparent and castor oil had little beneficial effect. Coincidentally, he began to feel "weak all over," fatigued easily, and had more trouble with insomnia. He then saw his local physician, who thought that he had "low blood pressure" and "anemia." He was given a "tonic," an iron and liver preparation, and some other pills but had no benefit from this therapy. All of the symptoms continued unchanged, and, in fact, became progressively worse throughout the year.

Five weeks prior to admission here, he developed an "infection," characterized by difficulty in breathing and increased weakness. On April 5, 1961, he came to the Mayo Clinic with the symptoms just noted and, in addition, complained of intermittent paresthesias in the right hand, perhaps more pronounced in the fifth finger. Furthermore, it was apparent that his hearing was mildly impaired.

Physical Examination

He was an obese, pale, elderly man, who appeared weak, tired, and quite sluggish; he talked slowly and with some effort. Blood pressure was 110 mm. Hg systolic and 70 diastolic, pulse was 70 beats per minute and regular, and tempera-

Continued

ture was 97.8° F. Both lung fields were clear, and results of examination of the heart were not remarkable. The liver was noted to be two to three fingerbreadths below the right costal margin. The spleen was not palpable. His gait was very unsteady and wide-based; he had a tendency to fall ot either side and was unable to walk either on his heels or on his toes. Rombergism was present. Both optic disks seemed slightly pale; visual acuity (with glasses) was 20/25 in the right eye and 20/400 in the left. On gross confrontation, both visual fields seemed to be deficient laterally. Both pupils were equal and reacted to light. No nystagmus was noted. The deep tendon reflexes were present and equal. Plantar responses were flexor. The speed of alternating motion of tongue, hands, and feet was reduced slightly. He had cerebellar-type ataxia of all extremities. Muscle strength was normal except for minimal weakness in the interossei and hypothenar muscles of the right hand. No fasciculations were noted. Muscle tone appeared normal. Results of sensory examination were unreliable, although probably normal.

Laboratory Findings

The initial laboratory investigations gave the following results: urinalysis, negative except for minimal albuminuria; hemoglobin, 11.5 gm. per 100 ml. of blood; erythrocytes, 3,900,000 per cubic millimeter; leukocyte count, 4500 per cubic millimeter; differential leukocyte count, 36.5 per cent lymphocytes, 2.5 per cent monocytes, 43.0 per cent neutrophils, 17.0 per cent eosinophils, 0.5 per cent basophils, and 0.5 per cent late metamyelocytes; erythrocyte sedimentation rate, 30 mm. in 1 hour (Westergren); true fasting blood sugar, 74 mg. and blood urea, 25 mg. per 100 ml. of blood; direct bilirubin, negative; and indirect bilirubin, 0.30 mg. per 100 ml. of serum. A thoracic roentgenogram revealed bilateral thickening of the apical pleura and a cardiac shadow whose size was at the upper limit of normal.

Discussion

This case is interesting, not as an unusual, exotic neurologic disorder, but as a problem in clinical medicine and neurology which is fairly common, and which, in this instance, demonstrates a number of unusual features.

Dr. Charles F. Bolton*:

First, I will attempt to localize the neurologic lesion, although I believe that this entire clinical picture can be explained on the basis of a single lesion. At this stage I think it would be wisest to regard the disease process as a disseminated one, or at least one that had rather widespread effects. From the neurologic standpoint, there was evidence of involvement of the left optic nerve, possibly the optic chiasm, the cerebellum or its tracts symmetrically, possibly a neuropathy of the right ulnar nerve, and perhaps involvement of the association areas of the cerebrum as manifested by mental slowing. In addition, there was anemia plus rather nonspecific and generalized symptoms.

With this in mind, it seemed best to assemble a differential diagnosis that could be applied to a patient with mild anemia who had these neurologic signs and symptoms. I thought first of pernicious anemia but there were not definite posterior column or pyramidal tract signs. Steatorrhea also seemed unlikely in view of the lack of bruising, edema, wasting, tendency to tetany, or history of fatty stools.

Toxic Substances

There are a number of toxic substances which are definite possibilities. Lead

*Fellow in Neurology, Mayo Foundation.

poisoning can cause cerebellar degeneration, anemia, peripheral neuritis, drowsiness, confusion, and involvement of the optic nerves. However, there is no history of a significant motor neuritis, a lead-line in the gums is not mentioned, and there are no laboratory findings suggestive of lead poisoning. Arsenic also causes peripheral neuritis, anemia, drowsiness, confusion, and involvement of the optic nerves. Hyperkeratosis apparently was not present and there was neither conjunctivitis, Mees lines of the fingers, nor definite signs of polyneuritis. Nevertheless, neither of these diagnoses can be definitely excluded. Diphenylhydantoin (Dilantin) intoxication may produce cerebellar degeneration and, rarely, macrocytic anemia; however, this patient had not been taking this drug.

Onifer and Whisnant[1] described a case in which exposure of a person to DDT resulted in cerebellar degeneration and peripheral neuropathy; however, in that case the clinical course was much more acute and the peripheral neuropathy was severe.

Malignancy

Some type of carcinoma is a more definite possibility. There have been reports of various neurologic syndromes associated with carcinoma: subacute cerebellar degeneration, degeneration of the long tracts of the spinal cord, mixed and sensory neuropathies, and involvement of the muscles, particularly the myasthenic syndrome. Carcinomatous cerebellar degeneration has occurred most often in association with carcinoma of the lung or ovary (the thoracic roentgenogram showed no evidence of a neoplasm). Carcinoma of the nasopharynx is another possible diagnosis. Bleeding into the gastrointestinal tract or frequent epistaxis could account for the anemia, and invasion of the base of the skull might account for the cerebellar and ocular signs. However, no definite evidence of such a lesion is given on the protocol. Some other type of carcinoma also could be present, particularly carcinoma of the gastrointestinal tract — a common cause of anemia in a man of this age group. However, there seems to be no evidence on the protocol for this kind of lesion.

Liver Disease

The patient was said to have an enlarged liver and this raises the question of some form of liver disease. Did the patient have cirrhosis of the liver with bleeding esophageal varices to account for the anemia? Furthermore, if this was an alcoholic cirrhosis, one could postulate alcoholic cerebellar degeneration and mononeuropathy. Dr. Dale, was the patient an alcoholic?

Dr. Dale: No.

Dr. Bolton: As a further argument against this diagnosis, there were no other clinical signs of liver disease.

Syphilis should be considered; however, the VDRL was negative. Sarcoidosis and other granulomatous diseases also could account for this clinical picture. However, there was no fever, lymphadenopathy, or other signs of such a process.

I might also mention other diagnoses which cannot be ruled out but for which there are no important pieces of evidence given on the protocol: disseminated lupus erythematosus, periarteritis nodosa, lymphoma, leukemia, thrombotic thrombocytopenic purpura, and polycythemia rubra vera with bleeding peptic ulcer.

Hypopituitarism With Myxedema

Finally, I come to the disease category that I think best fits the picture: endocrine disease, particularly hypothyroidism possibly secondary to hypopitui-

Continued

tarism. The diagnosis of hypothyroidism is well supported by the history of constipation, fatigue, cramps in the calves, anemia, cerebellar ataxia (which, according to one review,[2] occurs in 8 per cent of myxedematous individuals), and deafness (which, according to the same author, occurs in 15 per cent of myxedematous persons). Hypopituitarism is suggested by the fact that the patient was hypothyroid and probably had a chiasmal lesion. Hypopituitarism could be the sole cause of the anemia. Eosinophilia in the presence of hypothyroidism favors hypopitiuitarism as the cause of the hypothyroidism. Paresthesias of various types have been described in myxedema; the carpal tunnel syndrome is probably the commonest cause of these paresthesias. However, in this patient the numbness was mainly in the fifth finger and the muscular weakness of the hand involved the intrinsic muscles supplied by the ulnar nerve. I would postulate a compression palsy of the ulnar nerve at the elbow, since we are told that in the latter stages of his illness, the patient was nonambulatory.

The only disturbing feature of my primary diagnosis is that nowhere in the literature could I find reported a case of cerebellar degeneration due to secondary hypothyroidism. Dr. Dale, since I have committed myself to this diagnosis, would you like me to continue with a differential diagnosis of the type of chiasmal lesion that might be present?

Dr. Dale: No, not at this time. I understand from your discussion that you think the most likely diagnosis is hypopituitarism and secondary myxedema associated with cerebellar ataxia, but consideration also is given to the possibility that this patient may have occult malignant disease with cerebellar signs, pernicious anemia, or perhaps some toxic process such as lead poisoning.

I would now like to ask Dr. Whisnant for his impressions of this clinical problem.

Dr. Jack P. Whisnant*

I am unable to add very much to the rather comprehensive discussion that Dr. Bolton has given. He has already presented an exhaustive differential diagnosis with the exception of a differential diagnosis of intrasellar lesions, and I see no point in pursuing that further at this point.

It does appear that the progressive cerebellar deficit is symmetric. I would consider this a degenerative condition not related to any primary or secondary neoplasm in the cerebellum or its pathways. It is entirely possible that such a cerebellar degenerative process may be related to carcinoma elsewhere in the body or to hypothyroidism, but, with such an association, it sometimes is difficult to establish the direct relationship, even if the pathologic material is at hand.

Dr. Bolton's suggestion that the primary disease is hypothyroidism is interesting. I would certainly concede that the patient may have hypothyroidism as a part of panhypopituitarism, although I am not confident about that possibility from the observations recorded at the initial examination. One is impressed that this patient was quite ill at the time of the initial examination and I am not certain how much emphasis can be placed on the points which might suggest hypothyroidism.

It is my impression that in all patients who have been reported to have ataxia secondary to hypothyroidism, the hypothyroidism was primary and not a part of panhypopituitarism.

The pale optic disk and the observation of bitemporal field defect on confrontation seem to be adequate evidence of a chiasmal lesion of some sort. I would assume that this involves the pituitary gland.

---

*Consultant, Section of Neurology, Mayo Clinic, Rochester, Minnesota.

Metastatic Carcinoma to Pituitary

I believe it is most likely that this patient has a primary carcinoma somewhere, although the site is not readily apparent. He recently had had some pulmonary symptoms which seem to have caused exacerbation of his existing symptoms. A pulmonary lesion might be the site of a primary malignant neoplasm. There also is mention of an alteration in bowel habits which likewise might be due to a primary malignant neoplasm. When cerebellar degeneration is associated with carcinoma, the degeneration does not always start at the onset of the first symptoms of carcinoma. Cerebellar degeneration most commonly is associated with carcinoma of the lung in men although it has been described in association with a variety of carcinomas throughout the body.

My first impression is that this patient has a primary carcinoma, possibly in the lungs, that he has a cerebellar degenerative process, which may have some relationship to the carcinoma although this is not certain, and that he has panhypopituitarism from an intrasellar lesion, probably representing metastasis to the pituitary.

Dr. Dale:

Thank you, Dr. Whisnant. Your impression, then, is that this patient probably has a parenchymatous cerebellar degeneration, most likely secondary to an occult malignant lesion.

Dr. Robert G. Siekert*:

Before we go any further, could I ask Dr. Bolton a question? I note in the protocol that "Rombergism" is mentioned as a positive physical finding and I would like to ask Dr. Bolton for his opinion on the possibility of this occurring in the absence of evidence of impairment of joint sense.

Dr. Bolton:

I have had difficulty in interpreting what some people mean by "Rombergism." As I understand it, Romberg[3] first described this sign in a patient with tabes dorsalis: the patient swayed markedly from side to side when he stood with his feet together and closed his eyes. I suppose that, in the literal sense, findings other than this would not be compatible with a positive Romberg sign. However, I have noted that many people interpret the sign rather broadly so that various degrees of unsteadiness of the legs are interpreted as a positive Romberg sign.

Dr. Juergen E. Thomas*:

I would like to make a further qualification on this point. I think that Romberg's sign should not be recorded just as positive and negative. A description also should be given as to the degree of unsteadiness before and after closing the eyes so that a more accurate assessment can be made as to whether the unsteadiness is due to cerebellar or sensory ataxia, since there are patients with cerebellar ataxia who exhibit what I would call a Romberg's sign.

Dr. Siekert:

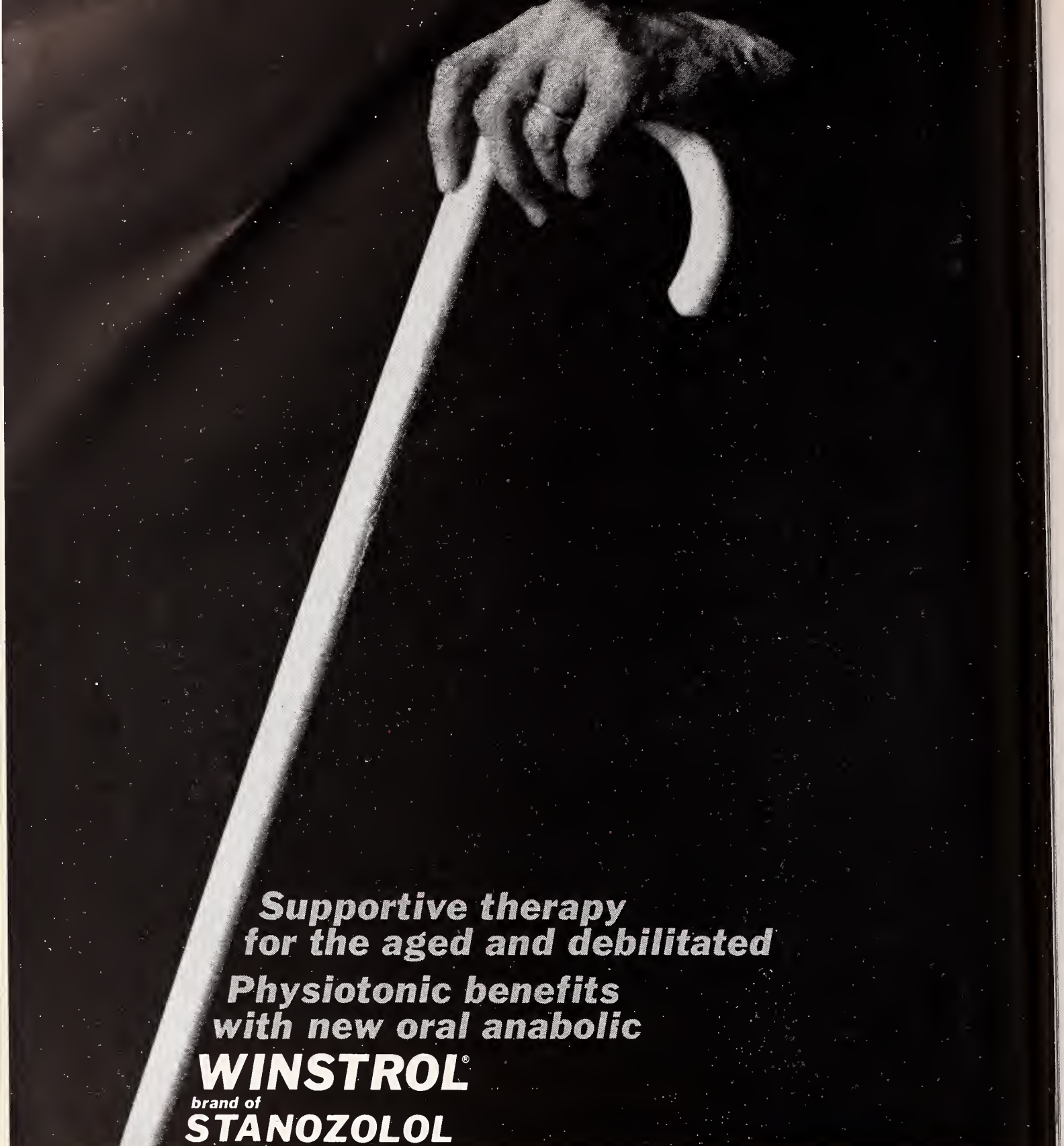
I agree with you, but I think that it is probably incorrect to say that this patient had Rombergism in the absence of evidence of involvement of the peripheral joint sense, although it is true that patients with cerebellar ataxia sometimes exhibit some increased unsteadiness when standing with their eyes closed.

Dr. Robert E. Yoss*:

I would like to qualify this point further and broaden the term "joint sense"

*Consultant, Section of Neurology, Mayo Clinic.

Continued



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to include all proprioceptive sense, including that of the vestibular apparatus. When there is involvement of the vestibular apparatus, closure of the eyes may result in unsteadiness while standing also.

Dr. Siekert:

Yes, I agree.

Dr. Dale:

The findings were presented as they were recorded in the course of the patient's examination. Dr. Siekert's point is well taken, however. In view of Dr. Yoss' remark, it may be interesting to note that some mention is made of the fact that the patient had some mild hearing deficit. Dr. Bolton, what further information would you like to have to help in the clarification of the problem at hand and what course would you pursue in the further investigation of this problem?

Dr. Bolton:

I would like some further information about the history and the physical examination. Did the patient appear myxedematous? Was there a hoarse voice, thick tongue, lateral thinning of the eyebrows, cool, dry extremities, and prolongation of the relaxation phase of the Achilles reflex?

Dr. Dale:

The skin was dry and the ankle jerks were thought to have a slow relaxation phase bilaterally.

Dr. Bolton:

Was the patient devoid of axillary and pubic hair? Was there atrophy of the testes and prostate?

Dr. Dale:

No.

Dr. Bolton:

Did the patient have any children and how old were they?

Dr. Dale:

The patient had two children; we do not know their ages.

Dr. Bolton:

What was the specific gravity of the urine?

Dr. Dale:

The urinary specific gravity was 1.027.

Dr. Bolton:

Then the patient probably did not have diabetes insipidus. What did the blood smear show?

Dr. Dale:

The blood smear was reported as showing no morphologic evidence for pernicious anemia. Moderate eosinophilia was noted as recorded in the differential leukocyte count.

Dr. Bolton:

What were the values for basal metabolic rate, protein-bound iodine, and blood cholesterol?

Dr. Dale:

The cholesterol was 428 mg. per 100 ml. of plasma and it was noted that the plasma was cloudy. The protein-bound iodine was 0.9 micrograms per 100 ml. of serum. The basal metabolic rate was −31 per cent.

Continued

Dr. Bolton:

There seems little doubt that the patient had hypothyroidism. To help decide if this hypothyroidism was secondary, could you tell me the concentrations of the serum electrolytes (although they are usually normal in hypopituitarism), urinary 17-ketosteroids, urinary 17-hydroxycorticoids, and blood cortisol?

Dr. Dale:

Analyses for serum electrolytes and urinary 17-ketosteroids and 17-hydroxycorticosteroids were not done. Estimations of the blood cortisols revealed a value of 4.5 micrograms per 100 ml. of plasma in the morning specimen and 2.9 micrograms in the afternoon specimen.

Dr. Bolton:

There is evidence then that the patient had hypoadrenalism, probably secondary to pituitary dysfunction. I would next like to see the roentgenograms of the skull.

There is fairly distinct ballooning of the sella turcica and I can see no invasion of the floor of the sella.

Dr. Dale:

Yes. The radiologist thought that the sella turcica was enlarged and that there was decalcification of the anterior and posterior clinoid processes. He thought that this might represent a pituitary tumor.

Dr. Bolton:

Could we have the results of the eye examination, please?

Dr. Dale:

Yes. Here are the results of examination of the visual fields.

Dr. Bolton:

These visual fields show a complete bitemporal hemianopsia with some involvement of the macular fibers on the left.

Dr. Dale:

Yes, and it also was noted by the ophthalmologist that there was definite, although mild, pallor of both optic discs, more pronounced on the left.

Dr. Bolton:

Was there an ear, nose, and throat consultation?

Dr. Dale:

Yes. The otolaryngologist thought that there was a mild nerve-type hearing loss although he was unable to test this accurately in view of the rather slowed mentation of the patient. Caloric tests were done and it was thought that labyrinthine function was normal. Dr. Whisnant do you wish to ask about anything else in the investigation of this patient?

Dr. Whisnant:

The problem seems to have been covered pretty well up to this point, but I would like to know the results of electrocardiographic study, if one was done.

Dr. Dale:

An electrocardiogram was made and showed a sinus rhythm with a rate of 64 beats per minute, evidence of left axis deviation, and inversion of the T waves in Leads I, II, III, V-5, and V-6. There was no evidence of abnormally low voltage on the record. At this point, Dr. Whisnant, what is your impression of this problem and what would your management be?

Dr. Whisnant:

I still think that this patient probably has a parenchymatous cerebellar degeneration, probably secondary to a malignant lesion and, in view of the findings on the skull roentgenograms and the studies of endocrine function, I would postulate metastatic lesions in the region of the sella turcica. With regard to management, I would have a neurosurgeon examine the patient with regard to definitive contrast studies and possible surgical approach to the intracranial lesion with a view to its identification and possible removal.

Dr. Dale:

Thank you, Dr. Whisnant. Dr. Bolton, what are your impressions at this point and how would you wish to manage this problem?

Dr. Bolton:

I would have the neurosurgeon examine the patient at this point.

Dr. Frank M. Howard Jr.*:

I think that an endocrinologist should be called in to start the patient on replacement therapy before any procedures are done.

Dr. Dale:

This was done and the neurosurgical consultant thought that the patient should be prepared with cortisone and that right transfrontal craniotomy should be performed. However, the patient was examined by a consultant in the ear, nose, and throat department at this time also and a transnasal approach through the sphenoid sinus into the sella turcica was suggested. This was carried out and, on removing the floor of the sella turcica, a smooth, whitish mass was encountered, biopsy of which revealed a chromophobe adenoma of the pituitary gland. The roof of the sphenoid sinus was further removed in order to decompress the sella turcica, and postoperatively the patient received radiotherapy to the region of the sella turcica. Replacement therapy with thyroid hormone and cortisone was continued. The visual fields improved only slightly postoperatively. The patient returned home and was seen for a follow-up examination in December 1962, approximately 18 months later. At that time it was noted that his ataxia was almost gone and roentgenographic examination of the skull and thorax showed no change from the examinations of April 1961. The cholesterol concentration was 241 mg. per 100 ml. of plasma and the plasma was noted to be clear. Hemoglobin was 13.2 gm. per 100 ml. of blood and the differential leukocyte count had returned to normal with a normal eosinophil count. The basal metabolism had increased to −4 per cent and the protein bound iodine was 5.7 micrograms per 100 ml. of serum.

In summary, it was thought that this patient did, indeed, have a cerebellar ataxia secondary to myxedema, in turn secondary to hypopituitarism resulting from a chromophobe adenoma.

Mayo Clinic Neurologic Case Presentation: March 27, 1963
Presentation: DR. ALLAN J. D. DALE**

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*Consultant, Section of Neurology, Mayo Clinic.
**Fellow in Neurology, Mayo Foundation, Rochester, Minnesota.

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Protein (%)	3.1-3.3	3.2-3.4	3.9-4.2	4.0
Carbohydrate (%)	4.3-4.6	4.6-4.8	5.6-6.0	5.8
Milk Solids Not Fat (%)	8.3-8.7	8.6-8.9	10.6-10.9	10.7
Total Solids (%)	11.6-11.9	8.7-9.0	12.6-12.9	12.7
Calcium** (mg)	286-290	296-300	350-355	352
Phosphorus** (mg)	212-216	220-224	264-265	266
Vitamin A. (I.U.)***	142-148	2000	2000	2000
Vitamin D. (I.U.)***	400	400	400	400
Thiamine** (mg)	.10	.10	.13	.13
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Gastric Hypothermia

In 1958, Wangensteen and coworkers introduced a method of gastric hypothermia for the treatment of massive gastrointestinal hemorrhage.[10] Gastric freezing was described by this group in 1962 as a means of achieving "physiological gastrectomy."[13] The following discussion will present some of the experimental background and clinical results.

Gastric Cooling

Cooling affects gastric physiology in several ways. Perfusion of a cat's esophagus with gastric juice from a patient with duodenal ulcer quite regularly produces perforation in a period of two hours. If the gastric juice is cooled to 20° C. or lower and if the cat is made hypothermic (25° to 30° C.), the esophagus shows no evidence of esophagitis or perforation.[10] This depression of digestion has occurred in all experimental animals studied except fish. Fish have active pepsin at 2° C. If a small spring frog (Rana pipiens) is placed in the stomach of normothermic large bullfrogs (Rana catesbeiana), digestion is complete in a matter of five hours; but in the cold frog no digestion occurs. When spring frogs with attached oxygen supply are introduced into the stomach of dogs, similar differences in digestion are found in the normothermic and hypothermic animals.[13] Gastric blood flow is reduced from 65 to 75% when the stomach wall temperature is 10 to 15° C. India ink injection into the celiac axis shows almost total ischemia of the mucosa. Several factors probably exert an influence on the blood flow, including arterial spasm, increased viscosity, sludging of red blood cells, and increased sympathetic tone. Secretion is greatly inhibited, and on histologic examination large amounts of pepsinogen are found to be stored in the chief cells during hypothermia. The parietal cells are incapable of responding to histamine at mucosal temperatures of 15° C. The motility of the intestine is greatly decreased at 30° C.[4]

In dogs, using the Bromsulphalein removal method of determining hepatic blood flow, cooling the stomach significantly reduces hepatic blood flow.[7] No deterioration in liver function has been observed in cirrhotic patients during gastric cooling. When renal function is studied in dogs, a significant reduction in renal plasma flow and renal blood flow is produced by the uncooled gastric balloon.[5] Cooling then results in a significant reduction in glomerular filtration rate.

The effect of gastric hypothermia in experimental pancreatitis has been studied.[3] Dogs with bile-induced pancreatitis during hypothermia were compared to normothermic controls. Cooling reduced intraperitoneal fluid and serum values of amylase and lipase by one-half.

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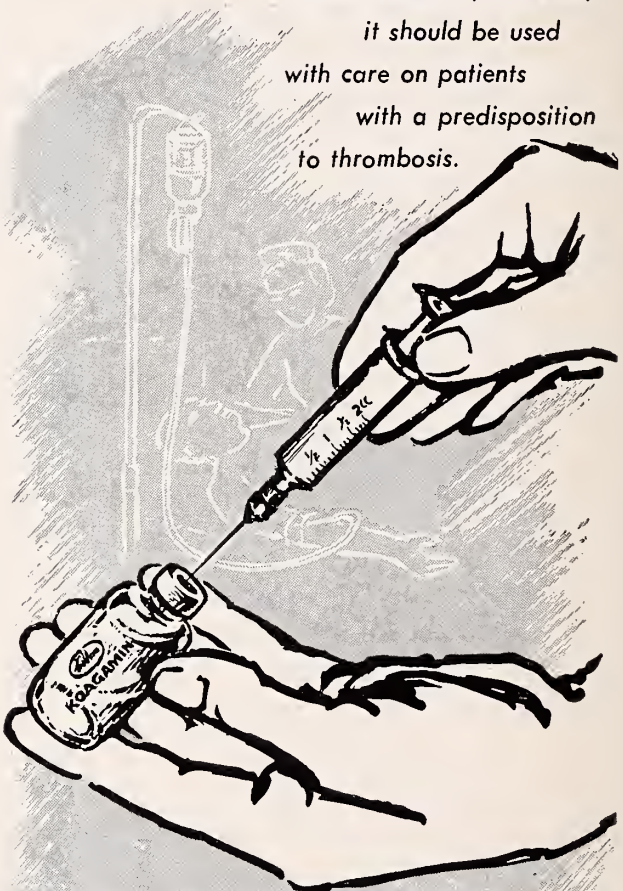
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Apparatus

The first mechanical gastric cooling apparatus was described by Barnard in 1956.[1] This was an intermittent flow type used during intracranial procedures to produce general hypothermia. Several other devices have been described in the literature.[2,6,10,13] In general they consist of a cooling unit, a reservoir, and a pumping mechanism. The pumping mechanism moves liquid to and from the stomach or balloon. A device to extract air from the system or a safety switch is important to eliminate increases of volume. Early in the development of the technique "open" gastric perfusion was employed.[4] The dog had very little loss of perfusion fluid, but the human lost much more, making this method impractical for prolonged periods of gastric cooling.

Technique

The throat is anesthetized with a local anesthetic such as 5% hexylcaine hydrochloride.[4] An Ewald tube is passed and the stomach is lavaged to remove blood and clots. This step is important, for blood and clots insulate the mucosa from the cooling effect and an unsuspected large clot could lead to gastric rupture. The Ewald tube is then removed and the double lumen tube with a gastric balloon is introduced via the nose. Another nasogastric tube is passed to detect bleeding and to decompress the stomach. The gastric balloon is slowly inflated. Discomfort after 200 to 300 cc. of fluid indicates esophageal location instead of gastric.[4,9] The gastric volume varies between 500 and 900 cc.

Aqueous gastrografin or a radio-opaque balloon assists in determining location on X ray. The inflow temperature is approximately 5 to 10° C., achieving a mucosal temperature of 10 to 15° C.

Supportive Measures

Supportive measures including a warming blanket are continued. Temperature may be monitored by a rectal thermocouple. S. L. Wangensteen and coworkers suggest an initial temperature of 2-4° C., which is raised to 18-20° C. after hemorrhage is controlled. Usually cooling is contained for 24 hours, leaving the balloon in place for an additional 12 hours.[9] O. H. Wangensteen and his group suggest a 16 to 48-hour period of cooling after the bleeding has stopped, and cold skim milk during the post cooling period to control the rebound secretion of free hydrochloride acid and pepsin.[4]

Indications and Contraindications

Those patients who have not responded to intensive conservative measures and who are not bleeding from blood dyscrasias or carcinoma are the best candidates. Obstruction must not be present. More specific contraindications are: shock with blood pressure below 90 mm. mercury; continuing hemorrhage with hemoglobin under 10 gm.%; necessity to continue transfusion in order to support a falling blood pressure, and uncontrollable tachycardia.[4]

Results

The results are taken from two papers, the Minnesota group having 75 patients[4] and the New York group 60 patients.[9]

Gastroduodenal Ulcers and Erosive Gastritis

In the Minnesota experience all but two of these 30 patients had their hemorrhage controlled. Of these two, one had a deep ulcer at the site of a

Continued

previous perforation with two bleeding arteries; the other had a prepyloric ulcer with bleeding from both ends of a 4 mm. arteriosclerotic vessel. The New York results revealed failure in three of 18 patients with comparable diagnoses. One each of duodenal ulcer, gastric ulcer, and gastritis were not controlled.

Esophageal Varices

Eight of 12 patients with established diagnoses were controlled by the Minnesota group. Four failures occurred before the use of a special esophageal-stomach balloon. The New York group had an experience involving 22 patients, all of whom were controlled. The salvage was only 68%, however, because of underlying disease. Seventeen of the 22 had severe liver failure.

Postoperative Stress and Steroid Ulcer Bleeding

Twelve of 19 postoperative patients were controlled, with six deaths attributed to hemorrhage. Six of the seven not controlled required operative intervention. Five patients with steroid ulcer were cooled, three being controlled.[4] The New York experience showed that seven of 11 patients were controlled, but only two survived because of rebleeding and associated conditions.

Miscellaneous

The Minnesota group controlled two of three patients with blood dyscrasias but none ultimately survived. Four patients with marginal ulcers, one with Zollinger-Ellison syndrome* were controlled in the New York experience. Hemorrhage in three patients, bleeding from an unknown site, was also controlled.

The overall experience at Minnesota included 75 patients, 68% of whom were in shock. Fifty-seven were controlled, and 18 deaths were attributed to hemorrhage. The New York group studied 60 poor-risk patients, of whom 70% were in hypovolemic shock. They attributed death in seven patients to hemorrhage. Their series was weighted with a higher percentage of patients bleeding from esophageal varices.

Complications[4,9,11]

Stomach Rupture

Rupture of the stomach can occur from air leakage into the cooling system with resultant increase in volume (two in the New York series, one in the Minnesota series). This problem has been corrected by a safety switch or bleeding valve on the apparatus which prevents an increase in volume.

Pneumonia

Pneumonia may occur but it is not certain as to whether this is due to aspiration or to immobilization in a critically-ill patient. The patient is kept in a semi-reclining position. Tracheotomy may be necessary in very elderly, comatose or very obese patients.

Rebleeding

A reactive hyperemia of the stomach wall occurs after cooling and may be part of the mechanism of rebleeding.

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*See Minnesota Medicine, November, 1962.

Other Complications

Cirrhotics may suffer from the *loss of gastrointestinal motility* because of ammonia production by the gut. *Nasopharyngeal hemorrhage* occurred in one patient with a nasal deformity. Three patients in the New York series were overtransfused. Systemic hypothermia must be prevented particularly in small patients.

Gastric Freezing[13,13a]

This is an extension of the concept of cooling to another aspect of peptic ulcer disease. The limits of gastric hypothermia were explored experimentally in dogs. When the stomach was cooled to 10 to 14° C. for five to seven days, a "trench foot"-like condition was found — with great swelling of mucosal folds and mucosal hemorrhage. This does not occur if the intragastric temperature is kept at 10 to 14° C. for 48 hours and then raised to 25° C. for five more days. No harm was noted when the mucosa was subjected to temperatures of 0 to 3° C. for two hours. More experiments in dogs established a critical temperature of −25° C. for one hour. Above this value no macroscopic evidence of injury is found. The temperature has not been achieved in man, but temperatures of −17 to −20° C. are well tolerated for one hour. The technique is similar to that described above for gastric cooling.

Effect on Digestive Juice Secretion

Freezing tends to impair the secretion of active digestive juice in three ways: 1) The mucosa becomes unresponsive to vagal action. It is not known whether the effect is on the vagus itself or on the mucosal nervous plexuses. 2) The previously frozen stomach empties normally. 3) The antrum becomes unresponsive to food ingestion, thus inhibiting the gastrin release mechanism. Parietal and chief cells are frequently affected directly and the frozen stomach often becomes achlorhydric. The duration of these several changes remains to be determined, but at the time of the report,[13] dogs had not become responsive after five months. Abnormal granularity of parietal cells, decrease in volume of mucus-secreting cells, and degeneration of nerve cells in Auerbach's plexus were noted histologically.

Initially two patients were cooled (10 to 14° C.) for two days, then maintained at 25° C. for three to five days with good relief of "intractable" pain after two hours of cooling. In later patients who were cooled the mucosal temperature at −10 to −15° C. for at least half of the cooling period. In all of ten patients cited, relief was achieved with respect to pain; all had a decrease in free hydrochloric acid and six became achlorhydric. At the time of the earlier paper, 24 patients with duodenal ulcer were treated with subjective control of the peptic ulcer diathesis. Healing of the ulcer crater was noted with regularity. The patients eat one to two hours after the procedure. One patient had the procedure as an outpatient. In general, patients with obstruction or suspicion of carcinoma are not candidates.

Results in 190 Patients

The later report gives the experience in 190 patients with the diagnoses of duodenal ulcer, 146, stomal ulcer, 15, benign gastric ulcer, 13, stenosing esophagitis, 2, and a miscellaneous group, 14. Symptoms were controlled in 83% of the duodenal ulcer group and in higher percentages of the other groups.

Continued



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Long range evaluation is difficult because most patients were not followed for a long enough period of time. Eleven patients had melena; eight were treated conservatively in the hospital. Three returned to their homes where gastric surgery was recommended by their surgeons and accepted by the patients. Five patients devoloped gastric ulcers which were felt to be due to a jet effect of the freezing fluid coming from an open-ended tube. This has now been corrected by sealing the end of the tube and providing lateral vents. A total of 10 patients had been operated upon, three for bleeding as mentioned above, three for gastric retention 6-12 weeks post-freeze, and two for gastric ulcers; the indication for the remaining two was not mentioned.

There have been no deaths reported attributable to gastric freezing.

The authors found their technique of gastric freezing a safe, useful and simple device in the treatment of manifestations of the peptic ulcer diathesis. Gastric cooling for upper gastrointestinal hemorrhage seems to be a useful technique also and merits wider clinical experience.

Leonard Schloff, M.D.

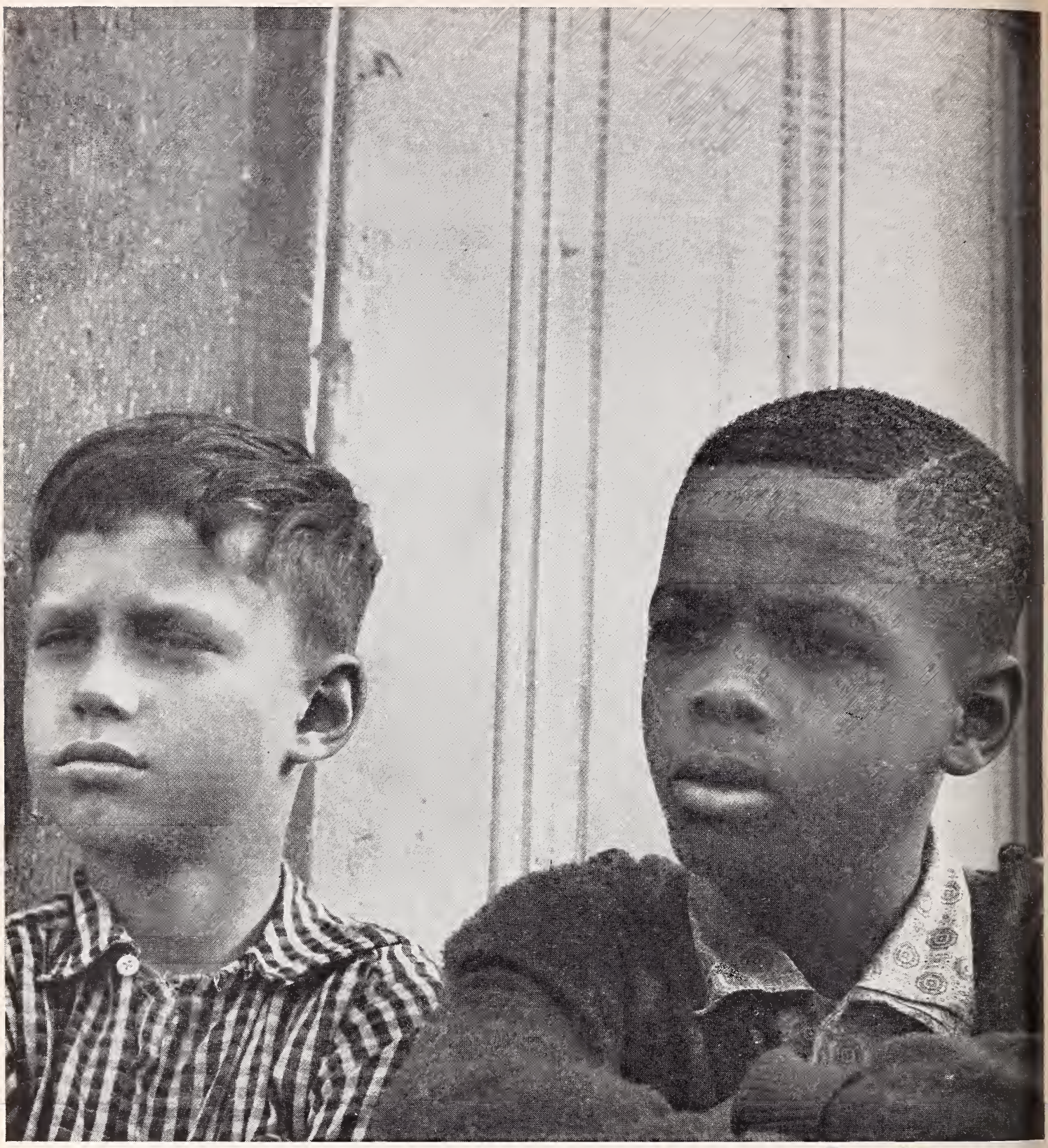
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*The Bibliography and additional information can be obtained by corresponding with — Grand Rounds Editor, Minnesota Medicine.



don't pass them by

Imagine how frightening it is to a child to see the world passing by and know that he or she is not really part of it. To be looking out from a sick bed, or a room in a home for the handicapped or the emotionally disturbed. And how hopeless it must feel to be a teen-ager struggling with a big problem and wondering where or to whom he might go for guidance, or a lonely old person searching for a face that's familiar. Please don't pass them by. Your United Fund or Community Chest is your chance to assist them all. **One gift works many wonders/GIVE THE UNITED WAY**

Space contributed as a public service by this magazine



Abstracts, Briefs and Commentaries

HEADACHE

This review article discusses the drug therapy of muscle-contraction (tension) headache and of vascular headache of the migraine type. In groups of persons with tension headache, symptomatic relief occurred in 45 per cent from use of a placebo alone, in 56 per cent from an analgesic or sedative given alone, and in 71 per cent when an analgesic and sedative were given in a combined form. Of a group of tranquilizers, chlordiazepoxide (Librium) was most effective (70 per cent) in providing relief from this kind of headache. Vascular headaches of the migraine type have been treated prophylactically with sympatholytics, antispasmodics, sedatives, histamine, vasoconstrictors, vitamins, and central nervous system stimulants. However, the remission rate of 45 per cent obtained with the use of these drugs was no greater than that occurring with the use of a placebo. Methysergide (Sansert), in dosages of 6 mg. per day, resulted in a 50 per cent improvement in headaches in 79 per cent of a group of patients with common migraine, 77 per cent of those with classic migraine, and 90 per cent of those with cluster headaches. The author uses various ergotamine preparations and by various routes, in addition to methysergide, for the treatment of individual episodes of migraine.

Peter J. Dyck, M.D.
Rochester, Minnesota

Friedman, A. P.: "Studies in the Pharmacotherapy of Headache. In Symposium on Headache: Its Mechanism, Diagnosis, and Management." Neurology: 13 Part 2:37–33 Mar. 1963

STASIS ULCERS

Forty cases of chronic and severe stasis ulcers were presented for study. The authors have done a wide excision of skin and fascia with replacement of split thickness graft on muscle. Good results were obtained in 34 cases with only two cases of poor results judged by development or recurrent ulceration.

Continued

The authors believe the reasons for the excellent results are in the main, due to a radical, wide excision of all the brawny thick or indurated areas, extending the excision into completely normal tissues, and achieving sufficient depth to have excellent base and blood supply.

The article includes a review of the more outstanding articles on this specific subject with their own comments on the literature.

In surgical attack of a problem of stasis ulceration it must of necessity include meticulous detail to all of the lessons learned in the past, and the radical attack is no doubt extremely important.

J. H. Strickler, M.D.
Minneapolis, Minnesota

Anderson, M. N., and McDonald, K. E.: "Results of Surgical Therapy of Severe Stasis Ulceration of The Legs": Ann Surg: 157:281. Feb. 1963

FECAL UROBILINOGEN IN JAUNDICE

Since the clinician continues to occasionally experience difficulty in establishing a diagnosis rapidly in the patient with jaundice, the authors decided to assess the role of the fecal urobilinogen excretion test in their patients. In spite of subsequent confirmatory reports supporting Watson's initial suggestion of the value of this determination in identifying obstructive jaundice due to malignancy, it has not attained widespread popularity.

In this report the authors correlate the fecal urobilinogen excretion in various pathological conditions observed in fifty-three patients over a period of three years at the University of Oklahoma Medical Center, with the final diagnosis.

Clinically there is not absolute correlation between the degree of jaundice noted and the quantity of urobilinogen in the feces. Obviously, active hemolysis of red cells was associated with a high level of fecal urobilinogen excretion.

The greatest value of the test is demonstrated in the low level excretors. The experience confirms Watson's prediction that the patients with biliary obstruction due to malignant disease will excrete less than 5.0 mg. of urobilinogen daily in their feces. Fourteen patients in this series were in this level. Two of them were infants with congenital biliary atresia. Another had diffuse sarcoidosis and was on oral antibiotics. One had homologous serum jaundice readily identified by history and an SGOT level of 7,500 Units. All the remaining ten patients had high-grade extrahepatic obstruction of the biliary tree requiring surgical intervention. One of these had an impacted calculus, but the remaining nine all had complete obstruction due to carcinoma. It is emphasized that no patient with biliary obstruction due to malignant disease excreted more than 5.0 mg of fecal urobilinogen daily.

Just as a rapid turnover of well publicized, new medications will sometimes cause us to temporarily abandon an old reliable, so will the allure of new, exotic, and intriguing laboratory mensurations occasionally result in the neglect of a valuable one such as that studied in the investigation, which has a thirty year test of time. It behooves the perplexed diagnostician confronted with a differential problem in jaundice to bear in mind the possibility of having a positive diagnosis of surgical jaundice in the three days required to determine the fecal urobilinogen excretion.

Robert N. Hammerstrom, M.D.
Minneapolis, Minnesota

Braden, E. F., and DuVal, M. K.: "Obstructive Jaundice Due to Cancer" Arch Surg 86:419 Mar. 63

DIAGNOSIS IN JAUNDICE

Although at least 80% of patients presenting with jaundice lend themselves to accurate diagnosis by conventional clinical and laboratory findings, the remainder present a growing problem. The widespread and often indiscriminate use of many drugs have made this problem more difficult. It is well established that many of these substances may affect liver function in a very selective fashion, resulting in a pattern of laboratory findings usually associated with surgical lesions of the biliary tree. By reviewing the newer concepts of bilirubin metabolism, the physician is in a better position to avoid these pitfalls. Since 1953, when the role of the liver in conjugation of bilirubin with glucuronic acid was defined, considerable revision in our previous concepts of bilirubin metabolism has taken place. The enzymatic activity of glucuronyl transferase and its deficiency have now defined a whole series of previously poorly understood jaundiced states. The problem presented by the jaundiced newborn is discussed. Similarly, jaundice of long standing in the elderly, debilitated adult is also discussed. The author feels that laparotomy with liver biopsy or cholangeography, or both, are of definite value in the management of these problems.

Courtesy of References and Reviews
Journal of the American Medical Association

Cohen, M.
Canad Med Ass J: 88:319 Feb. 9, 1963

SOLITARY LUNG NODULES

The study consisted of approximately 400 patients with pulmonary disease seen between May 1954 and December 1956 on the Medical-Thoracic Surgical Services at Letterman Army Hospital of which 52 were subjected to thoracotomy for excision of solitary pulmonary nodules, or "coin lesions." The authors' criteria for "coin lesion" were 1) a lesion 1 to 6 cm. in diameter; 2) rounded to ovoid with sharp, circumscribed borders; and 3) surrounded by normal appearing lung on all sides. In each operated case the diagnosis was established or confirmed by histologic means.

The most frequent entity was granuloma (61.5 per cent). Malignant lesions comprised 15.4 per cent of the total. Hamartomas accounted for 11.5 per cent and chronic focal pneumonitis for 11.5 per cent of the nodular densities.

To ascertain the possible accuracy of preoperative diagnosis and the pattern of selection of patients for thoracotomy, sets of preoperative chest roentgenograms were obtained on 50 of the 52 patients in the series. These, together with protocols containing all the information available prior to surgical intervention, were submitted to a group of established specialists including 5 radiologists, 5 thoracic surgeons, and 5 internists specializing in diseases of the chest. A detailed questionnaire was then submitted to each. The answers were then tabulated and analyzed in an attempt to determine how accurately a group of such specialists could assess pulmonary nodules preoperatively. From the divergent opinions expressed, it was apparent that the term "coin lesion" does not have a specific meaning and should probably be avoided. Noteworthy among the results of the study was that no malignant lesion was erroneously diagnosed if more than two-thirds of the reviewers agreed that it was nonmalignant, and more than two-thirds of the experts agreed that all 37 of the inflammatory lesions and 2 of the 5 hamartomas were benign. Using this as a

Continued

criterion for surgery, 39 of the 42 patients with nonmalignant lesions would have been spared thoracotomy. All 8 cases of malignant lesions and 3 cases of hamartoma would have been operated on because more than two-thirds did not agree that the lesion was benign.

Statistical analysis demonstrates that a similar type panel composed of 6 members, to make up a medical-surgical-radiologic chest conference, would result in less than 1 per cent of cases presenting malignancies not being operated on if more than two-thirds (5 or more) agreed that the lesion was benign; and that only 10 per cent of patients with benign lesions would be subjected to thoracotomy, mostly patients with hamartomas.

This study offers a real contribution in setting up a pattern to be followed for those charged with the responsibility of managing such chest cases. In order for such a panel to function validly, however, it is important that the independent judgment of each member be exercised in the voting. To guarantee such independence of opinion, the voting should be done by secret ballot.

Harold D. Kletscha, M.D.

Edwards, W. M., Cox, R. S., Jr., and Garland, L. H., "The Solitary Nodule (Coin Lesion) of the Lung," Am J Roentgenol Vol. LXXXVIII: 1020, December 1962

TUBERCULOSIS AND EMPHYSEMA

On 386 patients with pulmonary tuberculosis, 50.8% had obstructive ventilatory impairment characteristic of emphysema. The degree of ventilatory impairment was directly proportional to the stage and duration of tuberculosis. No patient had respiratory symptoms antedating the onset of tuberculosis. These data suggest that tuberculosis of advanced degree is a cause of pulmonary emphysema, and stress the need for earlier detection, vigorous treatment, and perhaps earlier surgical intervention to prevent respiratory insufficiency.

Courtesy of References and Reviews
Journal of the American Medical Association

Lancaster, J., and Tomashefski, J.
Amer Rev Resp Dis: 87:435, March 1963

RADIATION MYELOPATHY

In addition to presenting five new cases of radiation myelopathy, the authors have reviewed 38 cases that were described previously. Cases were included in this series only when radiation had involved segments of spinal cord that would explain the neurologic defects and when compression of the spinal cord from other causes, such as metastasis, had been ruled out by myelography or necropsy. The site of involvement was almost exclusively the cervical segment of the spinal cord. Myelopathy most commonly followed irradiation of nasopharyneal, hypopharyngeal, laryngeal, and lingual malignant lesions or irradiation of cervical lymph nodes in Hodgkin's disease and lymphosarcoma. The onset of symptoms from involvement of the spinal cord occurred in a variable period after the irradiation, the average being 1 year. The radiation myelopathy, an infrequent complication of radiation therapy, was attributed at least in part to an unusual vulnerability of nerve tissue in the affected persons. However, after a review of these cases the authors believe that the maximal dosages previously accepted as safe are too high. They should be lowered by 20 per cent.

Increasingly, radiotherapists have reduced total dosages of radiation to areas such as the spinal cord. Multiple courses of irradiation also may be contraindicated because of the possibility of radiation myelopathy. Physicians

should be aware of this complication so that they do not bring undue pressure on radiotherapists to re-treat patients who have already had maximal amounts of radiation.

Peter J. Dyck, M.D.
Rochester, Minnesota

Pallis, C. A., Louis, S., Morgan, R. L.
"Radiation Myelopathy" Brain 84:460, 1961

RADIATION GASTROENTERITIS

The author presents summaries of 13 case histories in which there were either acute or delayed symptoms of gastrointestinal complications following radiation therapy. He notes that although the incidence of serious post-irradiation symptoms of this kind is relatively low, even this figure will probably decline with improvement in methods, equipment, and knowledge of cancer and radiobiology. As it is, the occasional complication, he says, is a low price to pay for the successes frequently achieved. The acute syndrome, which occurs right after or during the course of therapy, is characterized by anorexia, nausea, vomiting, tenesmus, abdominal cramps, and diarrhea with or without rectal bleeding. Not all of these symptoms will appear in every patient, and the severity and type of symptoms will depend to some extent on the dose rate, total dose, the size and location of the field, and the modality. These acute complications are usually transient and do not necessarily mean that delayed or chronic complications will appear. Those symptoms which are classified as chronic or delayed occur six months or more (perhaps years) after treatment. They include such phenomena as pelvic pain, alternating constipation and diarrhea, symptoms suggesting mechanical obstruction of the bowel, and enterovaginal fistulae. Ulceration, stricture, and induration which may be revealed by physical and endoscopic examination often present a diagnostic problem by raising the question of recurrent pelvic cancer; because of a natural preoccupation with the patient's cancer history, misdiagnosis of such lesions is possible.

The series of histories include that of a man of sixty and 12 women ranging in age from thirty to seventy-one. The first 3 cases represent acute symptoms; the following 10 represent delayed or chronic symptoms.

In those cases where anorexia, nausea, and vomiting are distressing during courses of therapy directed at the external abdomen, reduction in the radiation dose and phenothiazine medication usually help. However, the milder medications such as the antimotion sickness drugs seldom help. In some cases parenteral fluids are needed; rest is helpful. In pelvic or lower abdominal radiation the complaints of diarrhea, tenesmus, and watery stools, with or without blood, also respond to decreased radiation dose; often, however, orally administered opium (in generous dosage) is needed for control. Glycerine suppositories or small warm oil-retention enemas often help in the more resistant cases. For severe proctitis, corticosteroid suppositories have been advocated.

For delayed symptoms the management may require only conservative management including the measures outlined for acute cases. Bland diet, stool softeners, and in some cases parenteral feeding, are some additional suggestions. Where the condition is severe, prolonged, or progressive, however, surgical diversion or resection may be required. Of the 10 cases with delayed symptoms, there was eventual operative intervention in 6. Most of these responded well to treatment. Only one had terminated fatally at the time of reporting.

Courtesy of Medical Abstract Service
Berwyn, Illinois

Brown, F.
Amer J Dig Dis: 7:1006–1024 November 1962

Continued

HASHIMOTO'S THYROIDITIS

Coexistent musculoskeletal diseases or symptoms were found in 23.5% of patients with Hashimoto's thyroiditis but only in 1.2% of patients with granulomatous thyroiditis. The former group showed a 10-fold increase in incidence of rheumatoid arthritis compared to the latter. Other conditions associated with Hashimoto's thyroiditis were fibrositic syndrome (7.9%), unexplained musculoskeletal symptoms (10.7%), and an unusual chest pain (11.9%). The capacity to develop an auto-immune reaction may represent a feature common in patients with Hashimoto's thyroiditis and certain of the collagen diseases.

Courtesy of References and Reviews
Journal of the American Medical Association

Becker, K., Ferguson, R., and McConahey, W.
New Engl J Med: 268:277 Feb. 7 1963

CHILDHOOD GOITER

Over the course of a 27-year period at the University of Michigan Medical Center, there has been a definite change in the incidence of surgical thyroid disease in children and adolescents. A clinicopathologic study of 136 consecutive thyroidectomies in patients to the age of 18 years showed an increased incidence of carcinoma, thyroiditis, toxic diffuse, and familial nodular goiter. The number of patients treated for nonfamilial or "iodine deficiency" goiter and adenoma has decreased. A comparison of these findings with other major series illustrates the same general trend. An evaluation of the various factors that may be responsible for these findings led to the conclusion that an actual and true increase in carcinoma and thyroiditis cannot be ignored. The findings in this group of children can be carried over to the apparently increased incidence of the same thyroid entities in the adult.

Courtesy of References and Reviews
Journal of the American Medical Association

Batsakis, J., and Nishiyama, R.
Arch Surg: 86:378, March 1963

THYROID CARCINOMA IN CHILDREN

In treating children with thyroid carcinoma, attempts to accomplish a total thyroidectomy surgically are accompanied by a distressingly high incidence of damage to the recurrent nerves and parathyroid glands. Routine radical neck dissections have significant therapeutic deficiencies in treating the disease as it occurs in childhood. The remarkably innocuous clinical course of this disease makes 5-yr. evaluations of treatment methods less significant. The surgical complications noted are more debilitating in a child than comparable functional losses in an adult. Conservation of nerve and parathyroid function, thyroid replacement, and conservation of some integrity of functioning neck structures seem especially advantageous for young children.

Courtesy of References and Reviews
Journal of the American Medical Association

Polack, W., Juler, G.
Amer J Dis Child: 105:243 March 1963

Truth is truth to the end of reckoning.—Shakespeare

Special Articles

Undergraduate Training

RICHARD M. MAGRAW, M.D.
University of Minnesota

We are sometimes asked what specific efforts are being made at the University of Minnesota Medical School to equip our graduating students for medical practice, and particularly for General Practice.

In considering this, it is well to remind ourselves that members of a medical school faculty are no more unanimous in their view of what should be taught about this aspect of medicine than about how much of the student's total medical school time should be devoted to anatomy, anesthesiology, psychiatry, etc. It is certainly appropriate that the curriculum should be a composite: the resultant of many different forces, individual concepts, and social pressures; it should not reflect particular personal views or professional biases. A university faculty has a responsibility to society to acknowledge and heed to some degree these forces, pressures, and concepts.

At the same time that the medical faculty feel a broad social responsibility to provide practicing physicians, they also feel a personal responsibility to young undergraduates to provide them with an education that will be realistic for the future.

Rapidly Expanding Medical Knowledge

These are difficult responsibilities to meet in this day when medical knowledge is logarithmically expanding, medical practice markedly changing, and medical education striving to find new ways to adapt to changing realities. It is difficult to guess what medicine is going to be like in ten or twenty years; yet for the students who are entering medical school now, ten years will pass almost before they get into practice. Bear in mind that each student is going to have at least a year in internship and probably two years of military service as well as his four years of medical school. In the event he takes postgraduate training, ten years may have gone by. In the interval, medical care in this country may have changed significantly. Consequently, it behooves his teachers to try to anticipate coming change and not to be content to continue patterns of training which have sufficed in the past, even if it were possible to do so.

Basic Sciences or Clinical Application

In considering what we do at the University of Minnesota Medical School to teach medical practice, it should be emphasized that there is not complete or unqualified agreement that this is a subject which needs to be taught or indeed can be taught in any organized or formal way. This skepticism regarding the feasibility and desirability of training in Medical Practice per se, prevails with many practicing physicians and also with many medical faculty members. For instance and understandably, basic scientists in medicine are likely to feel that he who knows basic sciences best is best equipped to practice medicine. Similarly academic clinicians are apt

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*Revision of Remarks at Component Chapter Officers Conference, Minnesota Academy of General Practice, November 14, 1962.

to regard their particular areas of expertness as of prime importance; they fail to understand clearly that even when a student has become reasonably proficient in physical diagnosis and has an extensive didactic knowledge of the individual disease states, there still may be a tremendous amount of information and skill required of him before he can actually apply this to the care of the patient.

It is understandable then that there is a good deal of difference of opinion as to whether there needs to be any special preparation for medical practice by the teaching of it, or whether such knowledge consists of marginal information to be picked up by a kind of professional osmosis. The view that this kind of knowledge is "soft," and the doubt that there exists any substantial core of factual data constitute part of the opposition to such a course.

In medicine we are surprisingly inarticulate when it comes to describing what we consider the essential elements of learning specifically preparatory for medical practice. For example, the Academy of General Practice is asking medical schools to train people for medical practice, and yet has trouble describing the subject matter of any additional courses that might be required; therefore the Academy is reduced to stating that it would like medical students "exposed" to general practice and general practitioners. Moreover we all tend to talk in terms of cliches such as the "art" of medicine, which cannot figure in curriculum plans but can be used to explain almost anything: a usage somewhat analogous to the use of "Patriotism" which Dr. Johnson termed "the last refuge of the scoundrel." We must be more articulate about what we mean and then get some agreement on the importance of teaching Medical Practice.

I am here discussing training for medical practice in general, not just for general practice; because I think the University's function is to turn out essentially a basic or undifferentiated doctor at the end of four years. However, I am not at all sure that you will agree with me as to just what we want to teach this basic or undifferentiated doctor.

The Basic Doctor

For the sake of discussion, however, let us equate this "basic doctor" with someone trained to do general practice and let us think in terms of educating people specifically for general practice. What does such a doctor need to know? In an article entitled "An Appraisal of Today's Family Physician," published in the November 3, 1962 JAMA, Dr. Thomas Rardin defined general practice as follows: "A general practitioner in the literal sense of the word undertakes the practice of all branches of medicine. A family doctor on the other hand, although he must know the fundamentals of all medical specialties, may limit his work as much or as little as he chooses." Dr. Rardin is making a distinction here between a general practitioner and a family doctor, just as we sometimes differentiate between the "generalist" (an idiosyncratic way of describing a doctor who must in effect know almost everything) and the family doctor.

When we discuss education for general practice here, in which sense are we using the term general practitioner? Are we considering the general practitioner in terms of the "generalist" or are we talking about the general practitioner as a family doctor? For my part, I am considering the general practitioner as a family doctor, since I have reluctantly come to feel that the other position is an untenable one. The real citadel of general practice is not a general expertness. It is not essential that the family physician be capable of doing everything from fractures to exchange transfusions to Cesarians to cholecystectomies. What is essential is that he be willing to undertake the general care of an individual or the members of a family; in other words, a general physician is one who does not restrict his work in order to evade or avoid overall responsibility. He is one who is willing to be a general contractor or a prime contractor. It is in this sense that I am concerned with the education of the Family Doctor rather than the "generalist."

At the University of Minnesota we have attempted to teach some of the common denominators of medical practice and have elected to do this primarily in the outpatient department, feeling that this is the logical place to do it. (It has been estimated that 85% of such a physician's work is office practice; and it is in the office, rather than the hospital, that some of the most important functions of the doctor stand out most clearly.) The complexities of a modern teaching

hospital tend to blur the fact that practice of medicine is based on a contractual relationship between two people, the doctor and the patient.

We have been emphasizing the central role of the family doctor whom we describe as the basic contractor, the prime contractor — the doctor who makes the commitment for a continuing comprehensive kind of care. Students have been learning by taking over this role. To be sure they undertake this in a limited way, for a limited time (6 months) and under supervision; but they do get the experience and the concepts, and thus a new dimension having to do with medical practice has been added to the training here. To accomplish this in our outpatient department, we assign our students to function as part of the outpatient staff where they have a role somewhat analogous to that of an intern in the hospital: a direct and continuing responsibility, under supervision of staff people, for the care of the patients.

What I have been describing is called the Comprehensive Clinic Program. Students devote full time to this for six months, usually in their fourth year of medical school. This arrangement takes a student beyond the point where many of us stopped learning in medical school: namely, beyond a preoccupation with knowledge of diseases and techniques, thus tending to reinstitute the patient as the unit of practice. It tends also to clearly delineate the professional role of the family physician and to describe this doctor as the integrator of therapy, in this way emphasizing the basically contractual nature of practice. Incidentally, it promotes the student's regard for the practising physician of the state, the referring doctor, as a valued and respected senior colleague.

Sometimes such an arrangement throws the students into a philosophical tizzy as to what the nature of "dis-ease" is, since patients' complaints and problems can rarely be understood in any neat "textbook" framework, and also because of the absolutely indispensable expenditure of personal energy and commitment involved in the care of patients. The doctor-patient relationship becomes a concrete reality to them rather than a tired cliche or shibboleth. As is true of swimming certain proficiencies in life must be experienced to be acquired. The role of the doctor in taking care of patients is one of them.

Our program also tends to kindle the student's awareness of what good medical care is. A kind of refocusing occurs and the student cannot be satisfied with a definition of medical care which involves solely tissue pathology, postmortem examinations, or knowledge of medical technique and biological esoterica. He is forced to include in his appraisal the patient's well-being and total functioning.

This training within medical school forces students to think in a broader philosophical way about medicine, about the role of the physician, about the fact that medicine is a life of service, and about the distinctions between the role of a physician who cares for a patient and the technical area of the specialist or consultant who often contributes greatly to the patient's welfare, but is essentially a helper to the man who is filling the basic physician role.

The fact that such issues are dealt with by undergraduates provides a more solid base for professional maturation than if left to personal intuitive and idiosyncratic solutions during practice and also gives the sanction of University emphasis to these basic professional issues, which are often relegated to a very unimportant place in the "official" professional view of things. In this period of concern about the declining status of the practitioner, it may be reassuring to note that this training brings medical practice clearly into focus as a prestigeful goal of undergraduate study.

Although it is hard to make ourselves understood in this area, all of us in medicine have an obligation to be explicit and articulate about what must be learned to be able to apply biological knowledge to the care of people. I firmly believe that there is a body of knowledge and set of skills which go beyond the basic sciences and knowledge of disease and syndromes which have been heretofore the limits of medical school training. This knowledge concerns skill in communication with patients, concepts of the physician as a therapeutic agent, and models of the doctor-patient relationship. Ultimately it leads to concern with early detection and prevention of disease as the surest way of serving others.



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Medical Economics

State Subsidy for Transients Increased

The Minnesota State Legislature during the 1962-63 session passed legislation to meet public health problems that result from infectious tuberculosis among transients, migratory workers and other non-settled individuals, sometimes referred to as "federal transients."

Chapter 703 amends Minnesota Statutes, Section 144.422, Subdivision 9; Section 144.425; and Section 251.03, Subdivision 2. The law became effective on May 14, 1963, the date on which it was signed by the Governor.

The above law was passed in order to provide increased state subsidy for the tuberculosis sanatorium care of non-settled persons, frequently referred to as "Federal transients."

The statutes relating to tuberculosis, as amended by Chapter 703, provide as follows:

Residence

The situation of a person who resided in the state throughout the year preceding application or commitment, exclusive of the time spent in a hospital or sanatorium, but did not reside continuously in any one county has been clarified. The county in which he longest resided during the year is the county of residence.

If a person did not reside in the state throughout the year preceding his commitment, exclusive of the time spent in a hospital or sanatorium, care shall be provided by the State of Minnesota at the Glen Lake State Sanatorium or, if committed by the district court, at the tuberculosis unit at Anoka State Hospital, and the county of commitment* shall pay an amount not to exceed 20 per cent of the cost of such care.

Commitment Procedure

The methods of committing public health menaces either by resolution of the board of county commissioners or by the district court remain the same (see Sections 144.422 through 144.425).

Ability of Patients to Pay

The provisions requiring patients to pay for sanatorium care if financially able have been retained.

Reports by Counties and Admission Policies Relative to Non-Settled Persons

Voluntary Admissions

If a non-settled person is to be cared for at the Glen Lake State Sanatorium and is willing to enter voluntarily, the county in which such person is present at the time of application shall conduct an investigation of his residence and financial circumstances and shall submit such information to the Commissioner of Public Welfare within one month after the date of application. Unless there is a medical emergency, admission will not be possible until such report has been reviewed and eligibility verified.

If a person willing to enter voluntarily requires emergency admission either for his own benefit or as a public health measure, the Medical Director of the Glen Lake State Sanatorium, or the

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*With reference to patients entering the sanatorium voluntarily, the responsible county is the county in which the person is present at the time of application.

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member of the medical staff designated by the Medical Director, may arrange such admission pending verification of eligibility. The county responsible will be determined later.

If there are adequate local facilities for the care of non-settled persons until eligibility for admission to the Glen Lake State Sanatorium at the increased state subsidy can be verified, such persons will not be considered eligible for emergency admissions.

Commitments as Public Health Menaces

The Glen Lake State Sanatorium will admit a person committed as a public health menace upon presentation of a copy of the resolution or the court order. The county in which such person is present at the time of commitment shall conduct an investigation of his residence and financial circumstances and shall submit such information to the Commissioner of Public Welfare within one month after the date of commitment.

Care at County Sanatoria

The Legislature did not appropriate funds for increased state subsidy for care of non-settled persons at county sanatoria. If a county sanatorium prefers to provide care to such an individual as a county-pay patient, the regular state aid available for county-pay patients will be paid ($1.50 per day as of July 1, 1963).

A Quick Quiz . . . .

Questions and Answers About Kerr-Mills in Minnesota

Your patients and the public are asking questions about Minnesota's new Kerr-Mills Law, passed in the 1962-63 Minnesota Legislature. Are you prepared to give them the answers? Quite often the professor who confronted his students with a surprise test would find a number who were unprepared to give the answers. The following is a unique quiz. It includes the answers as well as the questions. The real test will be how you score with your patients after acquainting yourself with the answers to the following vital questions.

Q. We have a good O.A.A. program, why do we need Kerr-Mills in Minnesota?

A. Under O.A.A, for each person over 65 on relief, the federal contribution to Minnesota is limited to a maximum of $58 per month, regardless of whether that person is well and living at home or desperately sick in an oxygen tent in an intensive care unit. The monthly *cost* difference for taking care of the individual is striking.

Under M.A.A., the federal contribution per individual is 50% of the administrative cost of the program plus 56.4% of the actual total health care cost. Therefore, there is a very substantial savings to the state in transferring those O.A.A. cases sick enough to require continuing institutional care from O.A.A. to M.A.A.

Q. How many nursing home cases are there under O.A.A.?

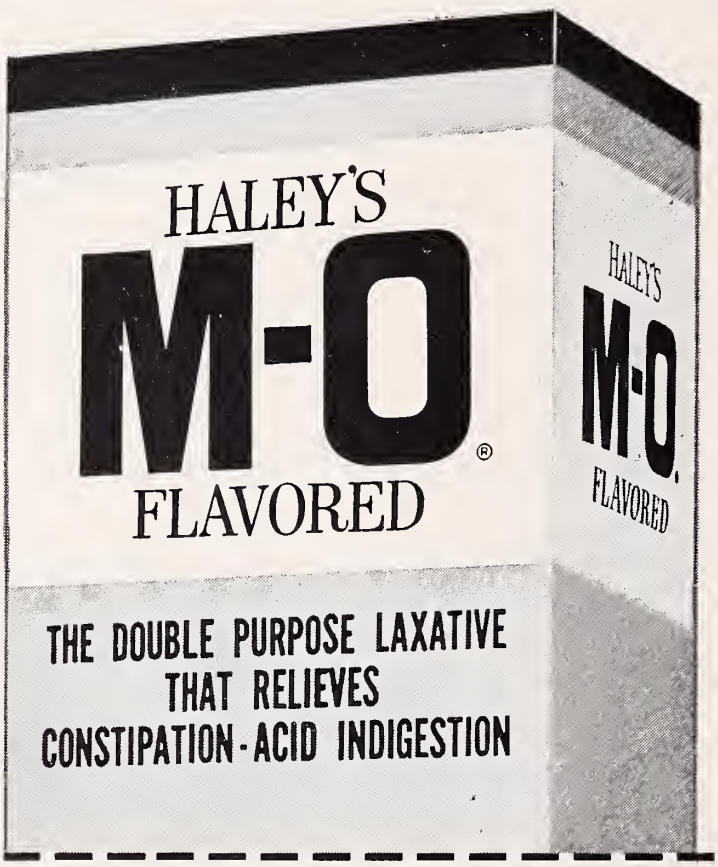
A. 8,300. This is approximately 1/5 of the total number of elderly enrolled in the O.A.A. program.

Q. What will it cost to care for these nursing home cases this year?

A. $17,500,000. This is well over half the total expense of the O.A.A. program.

Continued

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Division of Sterling Drug Inc., 1450 Broadway, New York 18, N. Y.

Q. Of this $17,500,000, how much will the federal government reimburse Minnesota under O.A.A.?

A. $5,698,000.

Q. How much reimbursement under Kerr-Mills (M.A.A.)?

A. $9,873,000.

Q. What is the net savings to Minnesota per year of carrying for these people under M.A.A.?

A. Minnesota would save approximately 4 million dollars a year just for these nursing home O.A.A. cases.

Q. Would King-Anderson type legislation result in a similar saving?

A. No. King-Anderson benefits run out after 90 days in the hospital or 120 days in the nursing home. They are not geared to this institutionalized class. Also, there is no federal participation in surgeon's fees, attending physician's bills, drugs, office calls, or home calls under King-Anderson, whereas matching funds for all of those are available under Kerr-Mills.

Q. Is Kerr-Mills (M.A.A.) of any help besides reducing the state costs for the O.A.A. institutionalized cases?

A. Decidedly. Its maximum help is in assisting people with uninsured medical costs which otherwise might drive them onto the relief rolls.

Q. How would this work?

A. With full implementation of Kerr-Mills, anyone over 65 who met certain eligibility requirements could get free health care after a $200 deductible.

Q. What are the eligibility requirements?

A. These are determined by each state and vary considerably. For Minnesotans, the following limits are approved and separate those who have potential need for public assistance from those who can handle medical expenses through private insurance and other resources:

1. Net worth — $15,000
2. Liquid assets, excluding cash surrender of insurance and burial plot — $750
3. Annual income up to $1800 per individual or $2400 per couple.

Q. Can people above these limits afford private insurance?

A. Yes. Because they have already demonstrated both their willingness and capability of assuming this responsibility. In the only objective study of Minnesota's senior citizen population, it was learned that 71% of those over 65 in the metropolitan area and 60% of those over 65 in rural areas currently had hospitalization insurance, and over ½ of them had purchased it within the past five years.

Q. Who conducted this study and when was it done?

A. Professor Marvin Taves, University of Minnesota Sociology Department, in 1960, as requested by the Governor in preparation for the White House Conference on Aging.

Q. What happens to one of these people if they have a very serious long-term illness, a so-called catastrophic illness?

A. At present after their private insurance benefits are used up, they have to go through all their savings and property, down to their last $300, and then apply for Old Age Assistance which requires a lien against their home in addition to total indigency.

Q. What will happen in the same situation after July 1, 1964, when the Kerr-Mills M.A.A. will take effect?

A. After the individual pays the first $200 (or his private insurance benefits have been used up), all the rest of his health care expense will be paid for under M.A.A., regardless of whether that care took place in his home, at the doctor's office, in the hospital, or in a nursing home. Of course, all private insurance benefits would be applied before any public funds could be used.

Q. How much will such a program cost in Minnesota?

A. Because of the net saving of approximately $4,000,000 a year on nursing home cases, this important and extensive new coverage would require only about $2,000,000 a year additional revenue (state and county).

Q. Is this a good buy?

A. We spend over $26,000,000 a year taking care of our totally indigent elderly. In the long

Continued

run, it should save the state money to operate a preventive program helping with serious medical expenses which are often the preamble to total indigency. Most important of all, we can guarantee any citizen of this state that he will never be driven onto the relief rolls because of illness. This is the security that our senior citizens want. This is the security that they deserve.

Q. But the King-Anderson bill wouldn't cost Minnesota anything, would it?

A. It would cost the state annually nearly $20,000,000.

Q. How is this figure determined?

A. Last year approximately 1.4 million Minnesotans paid Social Security taxes. The average annual wage on which Social Security tax was levied was $2,740.00. To finance the Medicare plan, Social Security taxes would be raised ½ of 1%. ½% of $2,740.00 is $13.70; the average tax increase per individual. Multiply this figure by the 1.4 million who pay this average tax increase, and you get $19,180,000. This money is pulled out of Minnesota and sent to Washington. It costs all of us just as surely as if it were any other kind of tax. You see, there is a price tag for King-Anderson type Medicare, and it reads many times the cost of implementing Kerr-Mills.

Q. But isn't Social Security a fairer way to collect this tax?

A. What is fair about limiting this tax increase to 1.4 million Minnesotans who have an average annual earnings of $2,740.00? Most of these people are trying to pay off a mortgage, buy their furniture, raise their families, and educate their children. What is fair about taxing these people to provide benefits for a group who have contributed nothing for health care under Social Security and ⅔ of whom in this state are already covered by private hospitalization insurance?

Q. Just how complete is the new King-Anderson bill often referred to as Medicare?

A. It is confusingly and seriously incomplete.

Q. Why?

A. Under the plan, the benficiary would have three options as far as hospitalization is concerned . . . (1) He could take 90 days of hospitalization subject to a $10 a day deductible for the first nine days, or at least $20, or (2) Up to 180 days of hospitalization with the patient paying the first 2½ days of average cost, or . . . (3) 45 days of hospitalization without a deductible . . . The bill would also provide 180 days of nursing home care after transfer from a hospital; all costs above the first $20 for hospital outpatient diagnostic services; and 240 home health care visits in a calendar year.

Q. You mean if a person over 65 got sick under Medicare and had to be hospitalized for more than nine days, he would still have to pay out-of-pocket on the hospital bill, (unless he had chosen the short 45 days coverage), plus all surgical fees, attending physician's bill, and then buy his own medicine when he is well enough to go home?

A. That is right. And in addition, if his illness exceeded the arbitrary time limits of King-Anderson Medicare, he would still have to bankrupt his private resources after that and end up on relief.

Q. Why didn't they design a comprehensive Medicare program?

A. It could be done. There is however, a serious question whether the workers of this country could be expected to shoulder the enormous additional Social Security tax bill that a totally comprehensive Medicare program would require. A good estimate is that a comprehensive no-time limit Medicare program for all citizens over 65 would require an immediate additional rise in Social Security taxes of 1½%, instead of the ½% rise which was thought adequate for the King-Anderson bill. A 1½% rise in the Social Security tax rate would remove another 3 billion dollars annually from the disposable income of our people. The 1% rise in Social Security tax which went into effect January 1, 1963, will eliminate 2 billion dollars of disposable income this year. To add another 3 billion dollars on top of this would just about nullify the advantage of any federal income tax cut which is currently proposed.

Q. You referred to the Social Security tax as a regressive tax. What does this mean?

A. Simple. The less you earn, the greater percentage of your income it takes from you. You get no exemption or credit against this tax, remember. As soon as you make $50 in any quar-

ter, the tax begins and at a constant rate. A married worker with two children has four exemptions for income tax purposes, and therefore the first $2,400 that he earns per year is income tax exempt. But after his first $200 of individual earnings or $400 of wages, he begins paying his Social Security tax at a constant rate. And the number of dollars that he pays is the same as anyone else earning the same wage, regardless of the size of his family, illness expenses, interest costs, or any of the other deductibles which help make the income tax more fair. And the final disadvantage is that he cannot deduct his Social Security tax from either his state or federal income tax.

Q. Kerr-Mills in Minnesota would do nothing for elderly people in other states, whereas Medicare would be nationwide. Isn't this more democratic?

A. The low per capita states are encouraged to implement Kerr-Mills by a much more favorable federal matching formula up to 80¢ on the $1, as opposed to Minnesota's federal share of only 56.4¢ on the $1, or New York's 50¢ on the $1. Needs and economics differ widely between industrial states and rural states, northern climates and southern climates. Kerr-Mills allows each state to tailor its own program to meet its own needs. Furthermore, those states which have not met their welfare responsibilities to their own citizens are the same states which boast of their low tax rates, special tax exemptions for newly enticed industry, and low wage scale. The latter is kept low by virtue of preventing effective unionization of labor. Under Medicare, Minnesota money would be leaving the state to solve these unmet responsibilities in those laggard states which at this very moment are doing their best to woo our leading manufacturers, or their secondary expansion facilities, or both. To pay for their elderly welfare program might be called a very democratic gesture by some. But it is clearly unfair to Minnesota taxpayers who have traditionally met their welfare responsibilities to the people of this state and who will continue to do so.

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Take Time TO READ — It is the fountain of wisdom.

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Take Time TO LOVE and BE LOVED — It is a God-given privilege.

Take Time TO BE FRIENDLY — It is the road to happiness.

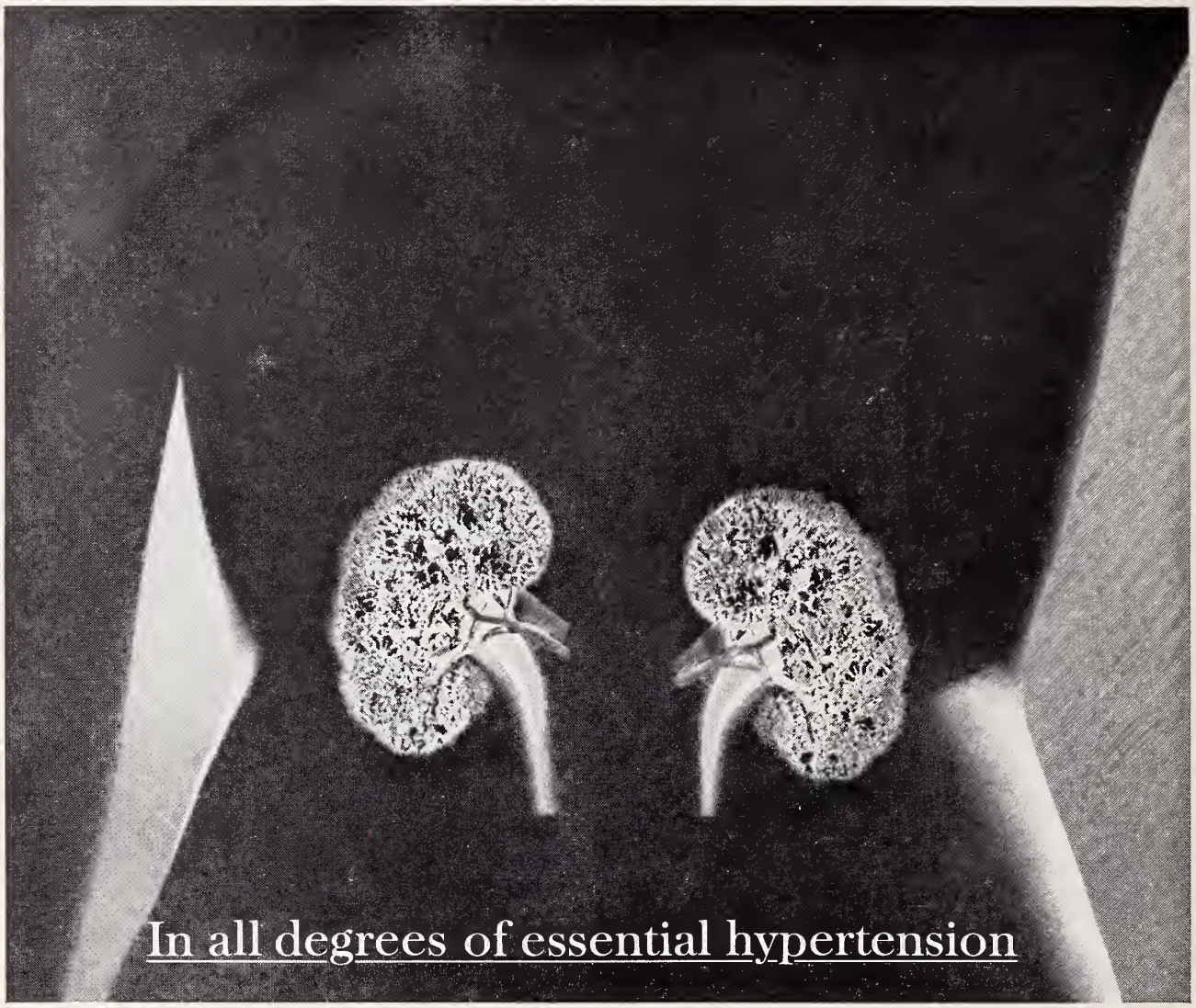
Take Time TO LAUGH — It is the music of the soul.

Take Time TO GIVE — It is too short a day to be selfish.

Take Time TO WORK — It is the price of success.

You are a king by your own fireside, as much as any Monarch in his throne.
—Cervantes

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Dosage: Initially, 1 to 4 tablets daily preferably at mealtime. For maintenance, 1 or 2 tablets daily.

Side effects and precautions: Rauwolfia preparations may cause reversible extrapyramidal symptoms and emotional depression. Caution indicated in use with depression, suicidal tendencies, peptic ulcer. Minor side effects: diarrhea, weight gain, nausea, drowsiness. Bendroflumethiazide may cause reversible hyperuricemia and/or gout, unmask latent diabetes, increase glycosuria in diabetics. Caution indicated in use for patients on digitalis, with severely damaged kidneys, renal insufficiency, increasing azotemia, cirrhosis. Contraindicated in complete renal shutdown. Minor side effects: leg or abdominal cramps, pruritis, paresthesias, mild rashes.

Supply: Rautrax-N—capsule-shaped tablets providing 50 mg. Raudixin® [Rauwolfia serpentina whole root], 4 mg. Naturetin® [bendroflumethiazide], and 400 mg. potassium chloride. *Rautrax-N Modified*—50 mg. Raudixin [Rauwolfia serpentina whole root], 2 mg. Naturetin [bendroflumethiazide], and 400 mg. potassium chloride, in capsule-shaped tablets. For full information, see your Squibb Product Reference or Product Brief.

References: (1) Moyer, J. H., and Heider, C.: Am. J. Cardiol. *9*:920 (June) 1962. (2) Brest, A. N., and Moyer, J. H.: Pennsylvania M. J. *63*:545 (Apr.) 1960. (3) Berry, R. L., and Bray, H. P.: J. Am. Geriatrics Soc. *10*:516 (June) 1962. (4) Hutchison, J. C.: Current Therap. Res. *4*:610 (Dec.) 1962. (5) Feldman, L. H.: North Carolina M. J.: *23*:248 (June) 1962.

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As Others See It

The Social Rehabilitation Club

J. LUCILLE POOR, Ph.D.
Minneapolis, Minn.

Circle f club, an unpretentious three-story house on Harmon Street, directly across from Loring Park, is a place where discharged patients from the mental hospitals meet with other patients already established in the community and with friendly visitors. The name and the emblem are symbolic of a circle of friendship. Besides friendship there is food, fun, and a multiplicity of factors which lead to planning for the social rehabilitation of the patient.

To their dismay, many patients, upon leaving the hospital, find their problems begin to multiply. These problems are loneliness, social isolation and the bitter welcome that too often permeates much of the social community to which the patient returns. The discharged patient feels different and alone. Although he may be in a community group it is what Riesman calls a "lonely crowd," full of unfamiliar faces and unfamiliar phrases. George Rohn, author of "White Cross Centres in Canada," reminds us that the dischargee "is under scrutiny, never given the privilege of even the small eccentricities or blunders we 'normal' people allow ourselves." To make his "comeback" the patient needs a crutch to lean upon. He needs a semiprotected environment in which he feels wanted, liked and respected. The club often bridges that gap between his release from the hospital where he had experienced security, and his acceptance by a community.

Since its establishment as a social rehabilitation center in 1958, this midway house has handled 15,725 patient contacts, but the average attendance at any one program is kept at approximately 40 patients.

Refreshments furnished by the volunteers are important to the program. In the beginning much of the activity centered around food. Some of the patient club members who had practically been seduced into the club with food, later began little by little to become interested in other activities. Every Wednesday small groups from St. Peter, Anoka, and Hastings State Hospitals come to the center. This group, along with a number of "ex-patients" living in the metropolitan area spend a few minutes with the volunteers planning what they will have for lunch, then proceed to the supermarket. The clients are encouraged to make their own decisions, and do the actual shopping. Upon their return to the center the patients do the cooking under the volunteer's supervision. Some of the guests from the hospitals had not been inside a supermarket for as many as ten years; others had not had a chance to cook for a long period of time. While one group cooks, another group sets the table, carries the food in, and finally serves it. Subsequently they wash the dishes. In addition to the Wednesday program, the general activities have included playing cards, bowling, sewing, knitting, and baking, crafts, the Great Book Discussion, Theatrical group, Speaker's Club, and trips to places of interest.

Continued

*Director Social Service Dept. Kenny Rehabilitation Institute.



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Like a triad, the action of Trancogesic is direct and simple as 1,2,3. Its tranquilaxant component – chlormezanone – 1. reduces emotional reaction to pain . . . 2. decreases skeletal muscle spasm . . . and 3. its aspirin component dims the patient's perception of pain. Thus, Trancogesic controls the *whole* pain complex – *with unsurpassed tolerance.*

Each tablet of Trancogesic contains 100 mg. of chlormezanone and 300 mg. (5 grains) of aspirin. The usual adult dosage is 2 tablets of Trancogesic three or four times daily. Reactions to Trancogesic have been minor – gastric distress, and an occasional weakness, sedation or dizziness. Ordinarily, these may be reversed by a reduction in dosage or temporary withdrawal of the drug. Trancogesic is contrainindicated in persons known or suspected to have an idiosyncrasy to aspirin.

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CHLORMEZANONE with ASPIRIN
100 MG. 300 MG.
*TRADEMARK

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Several community agencies participating in this social rehabilitation center are interested in the patients for different reasons.

The State Department of Public Welfare was interested because many discharged patients appear to be unwelcome in the community to which they return and therefore suffer from emotional and social malnutrition. The Department of Vocational Rehabilitation, which offered a money grant, was interested on the grounds that it was poor business to invest money in the vocational retraining of a patient where social isolation will eventually cause him to be inefficient in his training, on the job, and/or may result in his return to the hospital. The council of Churchwomen, which offered office and recreation space in one of the larger downtown churches, was interested because of the group's lifelong volunteer service to mental patients.

The National Institute of Mental Health provided a grant in order to carry on this demonstration project. The professional staff of the club consists of its director, social group worker, and clerical staff to help the patient with his pressing problems.

Before admission the prognosis and background of each prospective club member is discussed by an admission-discharge committee, composed of staff and board members. The patient may then have one or two interviews and even stay to have lunch with the group at the center.

Recently there has been established a "workshop," within which some of the clients spend hours fixing up chairs, upholstering furniture, and doing simple carpentry. Working at her easel in the club rooms, a former commerical artist and former patient as well, has just put the finishing touches to four pages of art work for a publication. This is one more step toward rehabilitation. It was the first money earned by this patient in eight years.

All of the volunteers are friendly and mature. Some of them are "town toppers" and others are outstanding citizen leaders. All are club members along with the patients. The greatest requirement is that they attend the programs primarily to enjoy themselves and to be concerned that those around them have a pleasant social experience.

If an ex-mental patient is to make a success of his final readjustment to community life, it is important for him to learn or relearn social skills before he tries to assume full responsibility for independent living. A Midway house maintaining a good relationship with the referring hospital, community physicians, psychiatrists, and social workers can serve as this needed stepping-stone between psychiatric illness and readjustment.

References

1. Southard, Curtis, B. G., M.D. "Next Steps in Community Mental Health Programs," reprinted from "Adult Leadership," April, 1960.
2. Pamphlet, Woodley House — A Halfway House, Washington, D. C.
3. The Sunday Star, Washington, D. C. June 5, 1960.
4. "A Halfway House with Family Feeling," Mental Hospitals, pp. 22–23, December, 1961 Vol. 12, Number 12.
5. "White Cross Centres in Canada." Special supplement for Canada's Mental Health, Department of National Health and Welfare, Ottawa, Canada.

The time to prevent delinquency is before it begins. United Way youth-serving agencies need your support to provide this important community service.



In Sprains, Strains and Muscle Spasm, 'Soma' Compound

numbs the pain...not the patient

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2. A.P.C. compounds have limited usefulness; and the patient can buy them without your prescription. Unfortunately, most of them are too mild to be effective for sprains—and more potent products too often make the patient feel 'dopey'.

3. 'Soma' Compound is ideal in these cases. Since it contains both 'Soma' (carisoprodol) and acetophenetidin it is both a potent analgesic and a superior muscle relaxant; it also contains caffeine to offset any drowsiness *("numbs the pain... not the patient")*.

4. Why not try 'Soma' Compound? Dosage is 1 or 2 tablets q.i.d. For more severe pain, try 'Soma' Compound + Codeine. Dosage: 1 or 2 tablets q.i.d.

5. Hypersensitivity to carisoprodol may occur rarely. Codeine may produce addiction, nausea, vomiting, constipation or miosis.

Soma® Compound

carisoprodol 200 mg., acetophenetidin 160 mg., caffeine 32 mg.

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Meetings And Announcements

SEPTEMBER

Fifth National Cancer Conference, Bellevue-Stratford Hotel, Philadelphia, September 17-19. Write: American Cancer Society, 521 West 57th, New York, N. Y.

Sixteenth National Rural Health Conference, Arlington Hotel, Hot Springs, Arkansas, September 20-21. Write: AMA, Chicago.

AMA Occupational Health Congress, September 25-26, Jack Tar Hotel, San Francisco. Contact: AMA-Chicago.

University of Illinois College of Medicine Department of Otolaryngology postgraduate course in Laryngology and Bronchoesophagology, September 16-28. Contact: University, 1853 West Polk Street, Chicago.

Fifth Annual Methodist Hospital Symposium, September 21, St. Louis Park on "Diagnosis and Treatment of Common Renal Disease." Write: Harold Wahlquist, M.D., at the Hospital.

OCTOBER

48th Annual Scientific Assembly of Interstate Postgraduate Medical Association, Palmer House, Chicago 21-24. Write: Interstate Postgraduate Medical Association, Box 1109, Madison, Wis.

American College of Physicians Postgraduate Courses: October 7-11: "Recent Advances in Basic Mechanisms" in Ann Arbor, Michigan and October 21-25 "Common Problems in Endocrinology and Metabolism" in Milwaukee, Wisconsin. Write: College of Physicians, 4200 Pine Street, Philadelphia.

Mississippi Valley Thoracic Society Annual Meeting October 19-21, at Radisson Hotel in Minneapolis. Contact: Donna Carr, 1829 Portland Ave. in Minneapolis.

Second Annual Conference on Research in Medical Education, Sheraton-Chicago Hotel, October 30 in Chicago. Write: Paul Sanazaro, M.D., 2530 Ridge Avenue, Evanston, Ill.

Annual Otolaryngologic Assembly, October 5-11, University of Illinois College of Medicine. Contact: Department of Otolaryngology at the University, Chicago.

American Cancer Society 1963 Scientific Session, Biltmore Hotel, New York October 21-22. "Unusual Forms and Aspects of Cancer in Man." Contact: Society in New York.

Animal Care Panel 14th Annual Meeting, Ambassador Hotel, Los Angeles, October 1-4. Contact: Exec. Sec., 4 E. Clinton St., Joliet, Ill.

Annual Meeting of the Midwest Allergy Forum, Sheraton-Cleveland Hotel, Public Square, Cleveland, O. October 12-13th. Contact: I. M. Hinnant, M.D., 10465 Carnegie Avenue, Cleveland 6, O.

American College of Gastroenterology annual postgraduate course, Shoreham Hotel, Washington, D. C. October 24-26. Write: College at 33 West 60th Street, New York.

Eighth International Congress on Disease of the Chest, Mexico City, October 11-15, 1964 Congress Building at the new Medical Center. Contact: American College of Chest Physicians, 112 East Chestnut Street, Chicago.

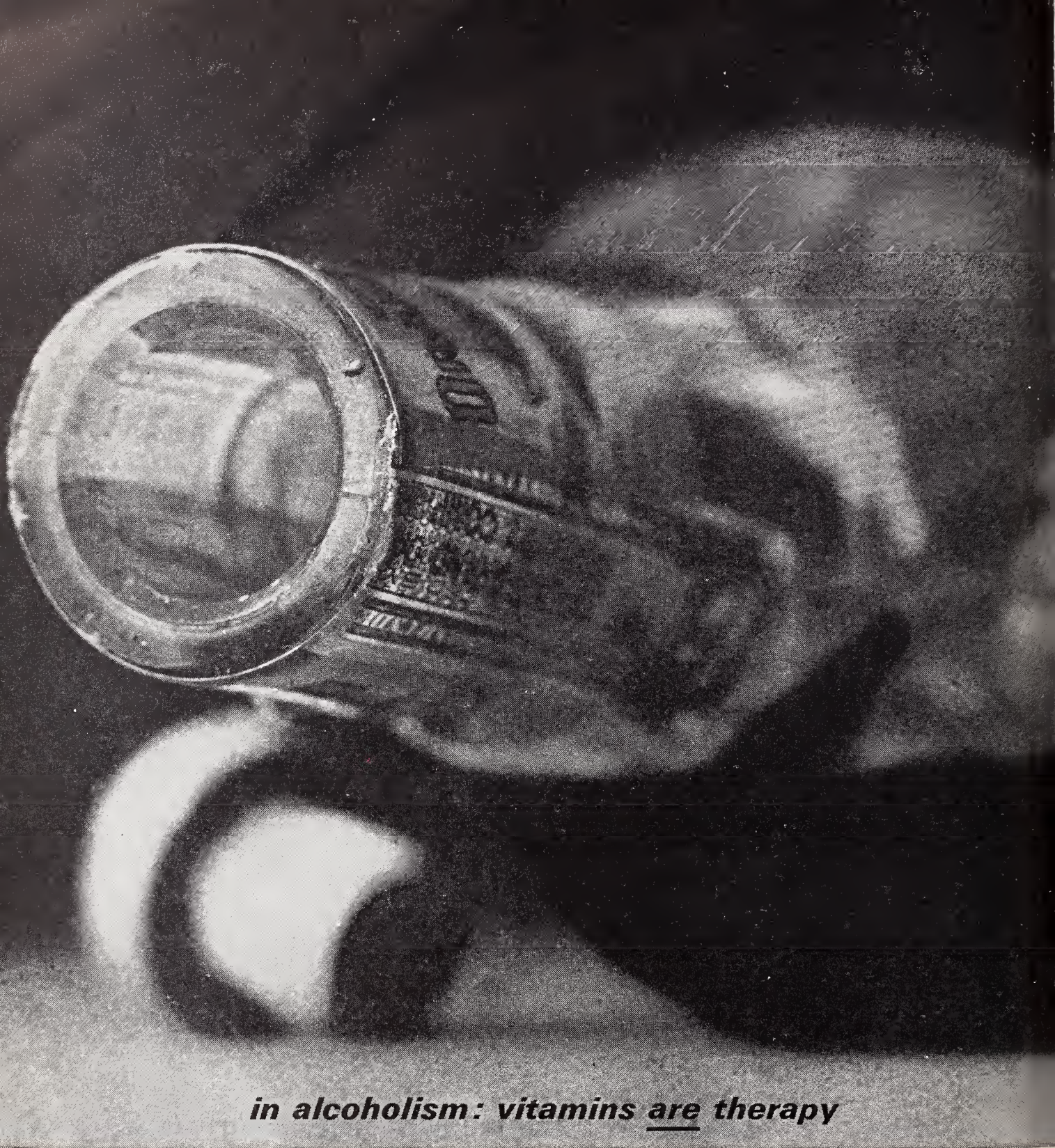
ANNOUNCEMENTS

Postgraduate Courses offered at the State University of Iowa:

September 14-15 — Radiology
September 18-19 — Pediatrics
October 11 — Diagnostic Techniques in Office and Surgical Urology
October 18 — Arthritis and Rheumatism

Contact the Director of Postgraduate Medical Studies, Iowa City, Iowa

(Continued on Page 937)



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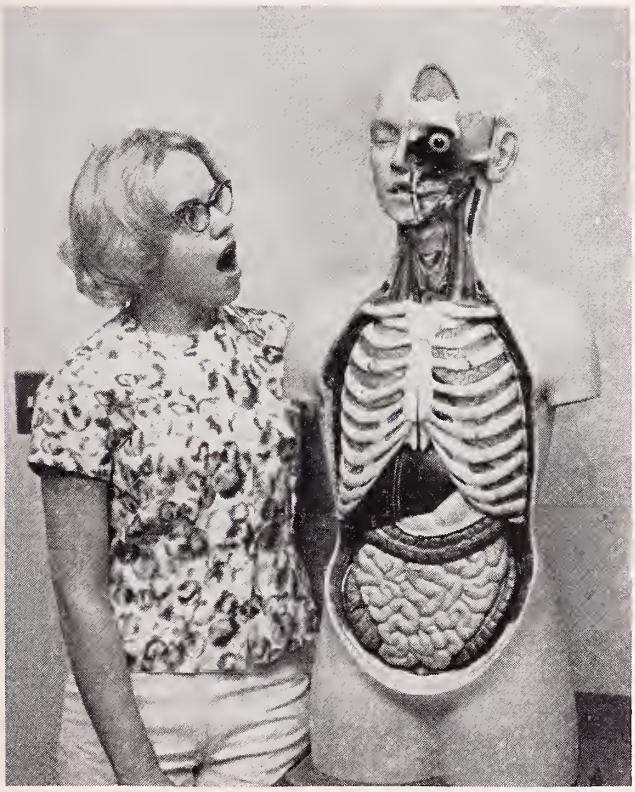
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The Blue Shield



WOW! gasped Judy Ehline, 20, Santa Ana, Calif., as she spied this cut-away model of the human torso. The figure is a part of the "Living Science Library" presented by Blue Shield of Minnesota to the Minneapolis Public Library. A part of Blue Shield's public relations program, the Science Library is designed to encourage young persons' interest in health science careers. The exhibit, which includes microscopes, slides, charts and specimens of animal and plant life, is the first of its kind in the nation and is used by students in science studies as well as by the Minneapolis Library in presenting scientific lectures.

For The Future

Thanks to Blue Shield of Minnesota and the Minneapolis Public Library, young students have a special opportunity to probe deeper into the mysteries of science.

The project, which was conceived and developed by Blue Shield of Minnesota, consists of basic educational scientific apparatus and supplies. It is located in the museum of the Minneapolis Public Library and the project is called the "Living Science Library."

Most of the work with the science collection is under supervision of the museum's staff. The equipment includes microscopes, a micro-projector, slides, specimens as well as preparations and scientific plastic models.

The "Living Science Library" is also available on a reservation basis for use of the public and groups. One part of the collection is on permanent display in the museum in lighted glass cases, which contain appropriate educational material.

In the future, and following an evaluation, Blue Shield may again make available a "Living Science Library" collection to an interested library in Minnesota.

Medicare Proposal

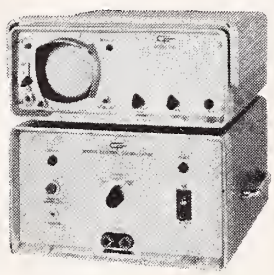
Fortune magazine, in an article entitled "Medicare, the Cure that Could Cause a Setback," strongly urges federal legislation permit-

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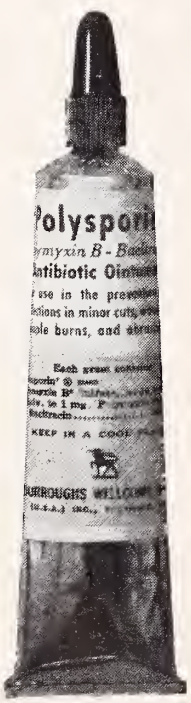


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Caution: As with other antibiotic products, prolonged use may result in overgrowth of nonsusceptible organisms, including fungi. Appropriate measures should be taken if this occurs. **Supplied:** in ½ oz. and 1 oz. tubes.

Complete literature available on request from Professional Services Dept. PML.

BURROUGHS WELLCOME & CO. (U.S.A.) INC., Tuckahoe, N.Y.

ting voluntary organizations to answer the need, with government help, for care of the aged.

The story argued for utilization of Blue Shield and Blue Cross rather than establishing new governmental sections to contract with suppliers of services, relating that both "Blues" are already widely respected, have low administrative costs, established relationships with doctors and hospitals, and are locally administered but national in scope.

Benefit levels would be set by Blue Shield and Blue Cross and the risk of miscalculations would be borne by them and not social security. Social security financing was argued to be the most practical source of funds for the system. Funds for those without social security would be provided from general revenue.

The article stated that as part of a contributory plan, benefits should be available to all but on a sliding scale of premium aid based on need should be established. Calculations for benefits would be based on Income Tax returns, thereby eliminating expensive investigations and the means test. For those who file no returns, the article suggests, the absence of sufficient income would be ample proof of need.

The article also recommended that the individual have the option of subscribing to plans offered by others than the basic underwriter, so long as benefits of equivalent value were provided.

Senior Citizens

Blue Shield is growing in popularity with the over-65 age group.

Blue Shield today covers two out of three senior citizens who have some type of medical-surgical coverage.

To Think About

In an age where it often costs more to repair a car than a human body, something is wrong with our perspective. When we spend more, on the average, for liquor and tobacco than for health care something is wrong with our values.

(Meeting & Announcements continued from Page 933)

Cholinesterase Activity Diagnostic Service

The Minnesota Department of Health announces the availability of a new diagnostic service to physicians who are treating patients with known or suspected exposure to the organic phosphate insecticide group. Blood specimens for cholinesterase activity levels will be accepted by the Department beginning immediately. Specimens submitted should be at least 5 milliliters in volume, obtained by venipuncture. The blood must be heparinized, and shipment should be made in rubber stoppered glass tubes. A letter requesting cholinesterase activity levels and stating the name, age and address of the patient, together with a statement of the nature and circumstances of the exposure to the organic phosphate should accompany the blood specimen. The mailing address is Minnesota Department of Health, University Campus, Minneapolis, Minnesota 55455.

* * *

University of Minnesota continuation medical courses for 1963-1964:

September 30-Oct. 2	**— Pediatrics**
October 10-12	**— Dermatology**
October 21-23	**— Pediatric Neurology**
November 4-8	**— Neuroradiology**
November 20-22	**— Ophthalmology**
November 21-23	**— Cardiovascular Diseases**
November 21-23	**— Orthopedic Surgery**
December 6-7	**— The Painful Back**

* * *

The subject for the Caleb Fiske Prize of the Rhode Island Medical Society is: "Clinical Application of Newer Discoveries in Enzyme Chemistry." Dissertation must be typewritten, double spaced, and not exceed 10,000 words. Essays must be submitted by December 11. Write: Caleb Fiske Fund, 106 Francis Street, Providence, Rhode Island.

* * *

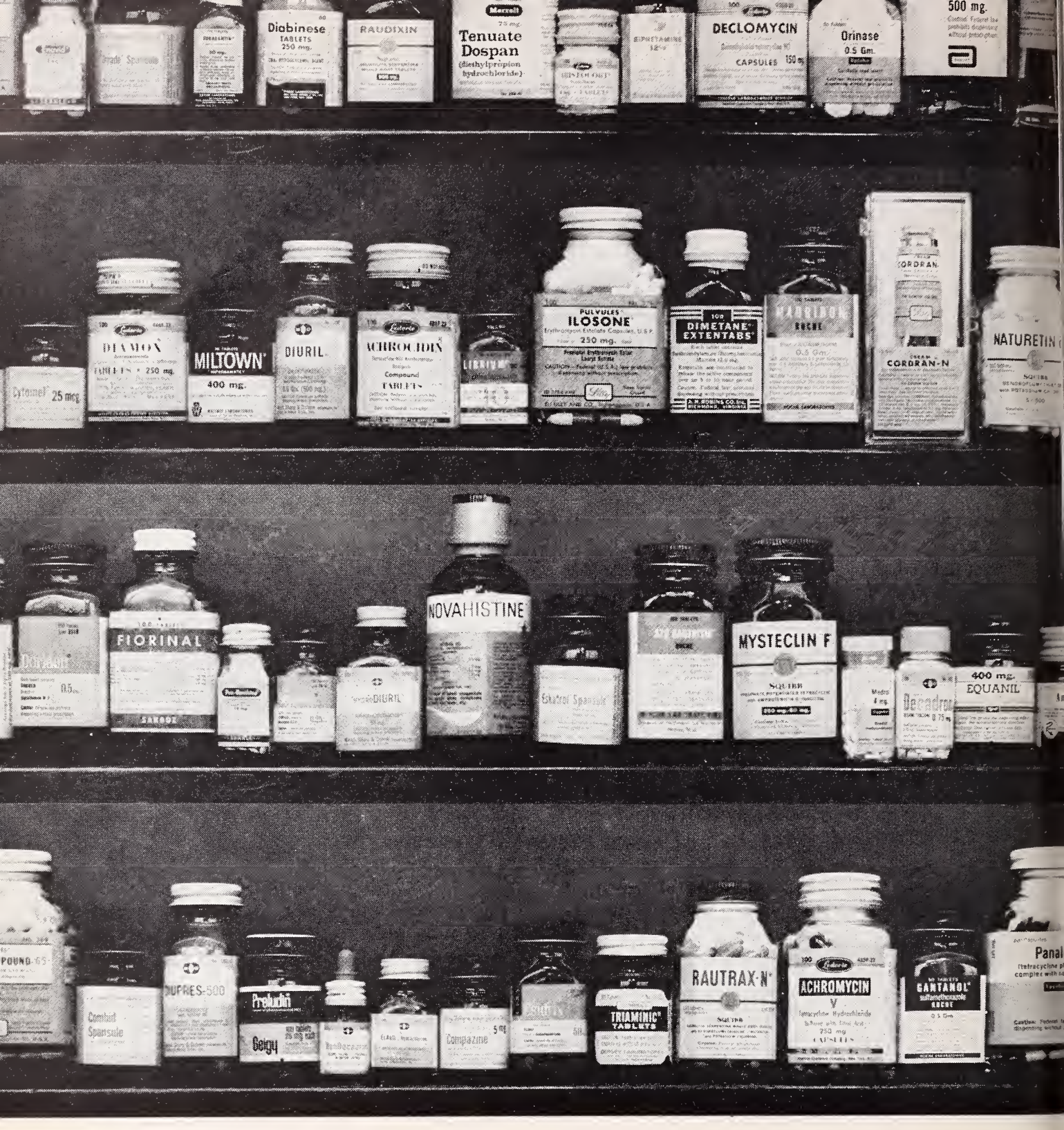
National Medical Foundation for Eye Care Third Annual Helmholtz Memorial Award for the author of finest article or essay on eye care published in the period August 31, 1962 to August 31, 1963. Entries must be submitted to office of the Foundation not later than September 30, 1963. Address: 250 West 57th St., New York 19, N. Y.

* * *

A nine month tutorial program in Cardiology, September 15, 1963 to June 15, 1964, will be offered by Institute for Cardio-Pulmonary Diseases, Scripps Clinic and Research Foundation, LaJolla, Cal. Write: Secretary, Scripps Clinic, La Jolla, Cal.

* * *

University of Minnesota postgraduate program for 1963 will be on "Failure to Thrive." Center for Continuation Study at the University of Minnesota, September 30 and October 1-2. Write: Dr. W. Albert Sullivan, Box 282, University of Minnesota Hospitals.



we couldn't begin to get them all into the picture...

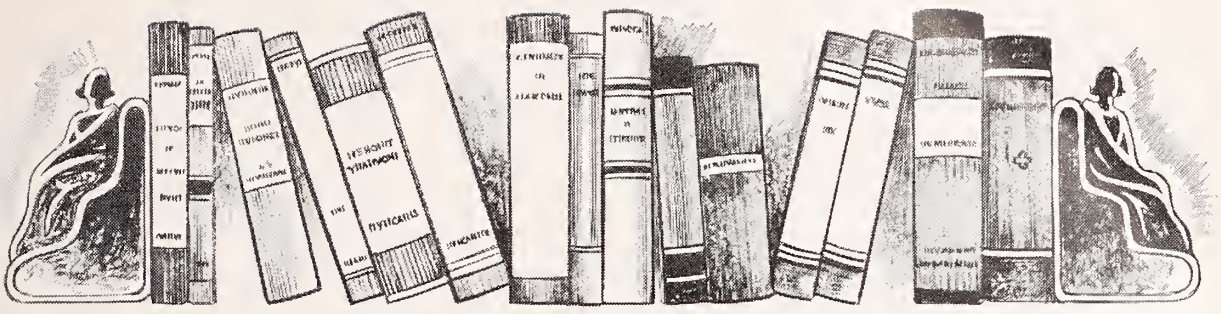
Much has been said and more has been written about the quality of, and the motives behind, independent drug research in this country. So we decided to take a look at what we, as an industry, have done in terms of medical progress over the years.

We made a list of the most frequently prescribed drugs of 1962. We gathered them together to take the picture you see on this page. Then we eliminated all products introduced more than 10 years ago. *But then, for the camera to make the labels legible, it became necessary to eliminate several more.*

Just 10 years ago none of these drugs were available for your prescription. How much would it affect your practice if none were available today?

This message is brought to you on behalf of the producers of prescription products.

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Book Reviews

"RELIGION AND BIRTH CONTROL" — John Clover Monsma. Doubleday, New York

All aspects of birth control and family planning are considered in "Religion and Birth Control," a collection of 21 essays by 21 physicians of varying faiths, and differing convictions on the subject.

It is edited by John Clover Monsma, an ordained Protestant clergyman residing in Grand Rapids, Michigan.

Moral scruples about various forms of birth control are often the cause of marital tension and unhappiness. In "Religion and Birth Control" the physicians explain why, according to their religions, they believe or do not believe in birth control. Being medical experts, they also go into detail, not only on the use of contraceptives and other birth control methods, but also on such matters as therapeutic abortion and sterilization, all of which are subject to increasingly hot religious controversy. This should be a good reference book for the obstetrician and the general practitioner who are confronted with this problem by their patients.

Publisher

HANDBOOK OF OCULAR THERAPEUTICS AND PHARMACOLOGY — Philip P. Ellis, M.D.and Donn L. Smith, Ph.D., M.D. C. V. Mosby Company, 1963. 193 pages, index, no references. Price $8.50.

As the authors state in the preface, this book was written to serve as a quick reference for the busy ophthalmologist as well as a guide in therapy for eye residents and nonspecialists treating ocular disorders. It is not intended as a textbook as indeed there are no references, structural formulas or historical-experimental details. The information presented is available in various standard sources but it is convenient to have it brought together in one volume. The approach is sound and conservative. The inclusion of new forms of therapy such as IDU and cardial glycosides has been made probably for completeness although, as the authors state, their value is questionable. The first portion of the book is divided into sections discussing the treatment of various groups of ocular disorders such as uveitis, glaucoma, etc. The last portion is an alphabetical reference of the drugs commonly used by ophthalmologists, including general medical and anesthetic agents. To my knowledge there is no book of this type available and it should find wide acceptance.

William S. McClanahan, M.D.
Minneapolis, Minn.

"BROKEN LONG BONE — ITS BIONOMICS AND MAN" — Robert T. McElvenny, M.D., Charles C. Thomas, 1963.

This rather short treatise on bone growth and repair is written in a unique and provocative manner. The introduction and chapter on anoxia, although perhaps not pertinent to the subject, stress the importance of good general surgical training and technique on the part of the doctor responsible for the care of the patient with a fracture of a long bone, and for this reason are quite refreshing.

The remainder of the book is concerned with the healing of bone and the various closed and open techniques the surgeon can utilize to aid this process. The fact that the author's main source of material is his wide clinical experience makes this book mainly applicable as a stimulus to those doctors starting their practice and not as a source book on the subject.

Harrison H. Farley, M.D.
Minneapolis, Minnesota

SYNOPSIS OF GENITOURINARY DISEASES— Dodson and Hill, C. V. Mosby Company 84 pages — $7.75

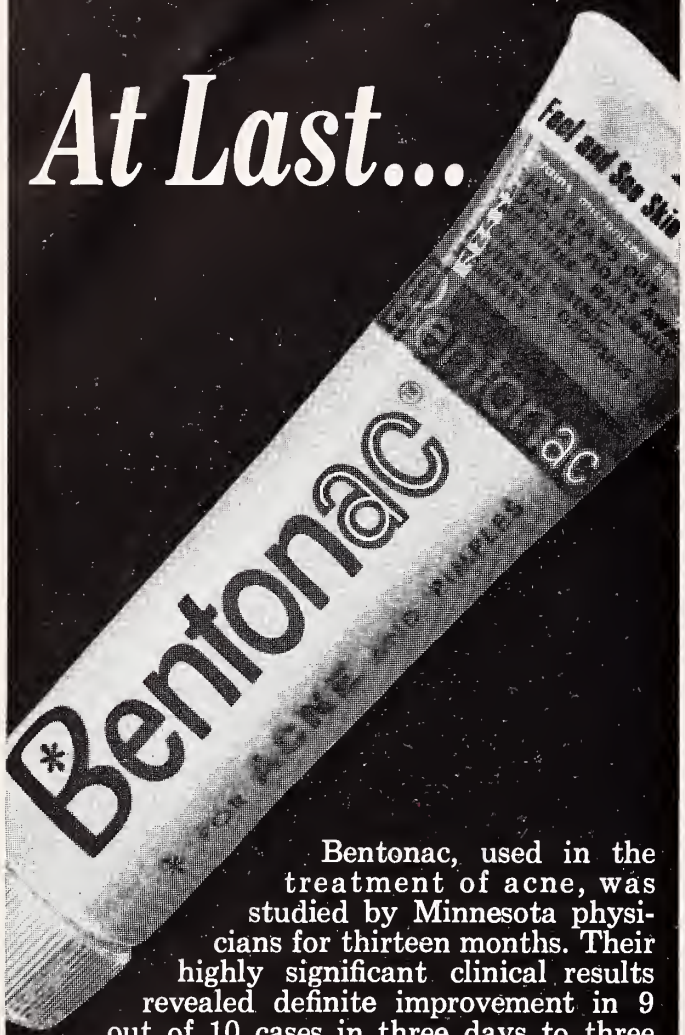
This book on genitourinary disease covers the field of some of the more major and common observed diseases of the genitourinary tract. This is an excellent reference for the man in general practice who has some special interest in genitourinary disease. It does not cover the entire field of urology, but it is sufficiently inclusive for the physician who wishes to refresh his memory. There are a few x-ray reproductions adequately illustrative of some of the more typical x-ray abnormalities.

It is nicely printed and well bound. It should make a good reference for any physician's library.

Carl O. Rice, M.D.
Minneapolis, Minnesota

A DIFFERENT SLANT FOR TREATING ACNE

At Last...



Bentonac, used in the treatment of acne, was studied by Minnesota physicians for thirteen months. Their highly significant clinical results revealed definite improvement in 9 out of 10 cases in three days to three weeks time.

Bentonac is a unique formulation of the natural clay Bentonite. Bentonac manifests remarkable activity on skin problems particularly, acne vulgaris because of its:

- * **Ability to adsorb excess skin oil.**
- * **Ability to bind protein debris by cation exchange.**
- * **Ability to act as a detergent thereby removing adsorbed skin oils and bound protein debris when the skin is rinsed with water.**

***(United States Dispensatory)**

In addition, Bentonac is non-toxic, non-allergenic, greaseless, odorless. It is invisible when applied as directed, and it is an ideal cosmetic base.

DIRECTIONS: For maximum results, lotion is applied twice daily and at bedtime. Small amount of lotion is squeezed onto palm of hand and applied over entire affected area. Light massage achieves maximum invisibility and effectiveness. As improvement is noted, applications should decrease as indicated.

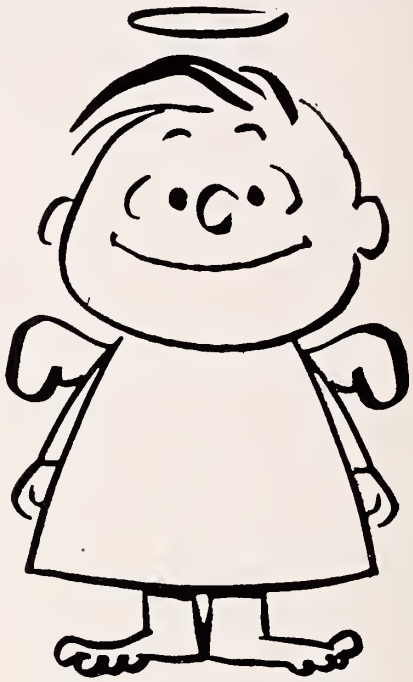
Available in 1½ oz. plastic tubes. No RX necessary. Bibliography furnished on request by writing:

Medical Director

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Classified advertising rates are twenty (20) cents a word; minimum monthly charge $5.00; key number, fifty (50) cents additional. Remittance should accompany order.

WELL ESTABLISHED 6 man group in Iowa town of 6,300 needs board eligible or certified internist immediately. Community building a new hospital. Salary first year, then percentage of net. Salary open. Write: MINNESOTA MEDICINE, Box 240, 496 Lowry Medical Arts Building, St. Paul, Minn. 55102

WANTED: GP partner. Good office, hospital, consultations, educational facilities, income, town, lake, hunting, fishing and partner. Best for German Catholic with GP surgical experience. Write: MINNESOTA MEDICINE, Box 241, 496 Lowry Medical Arts Building, St. Paul, Minn. 55102

CHOICE PROFESSIONAL office space available in Columbia Heights, Minnesota. Private office, dark room, lavatory, two examining rooms, laboratory, reception and waiting room. Heating, air conditioning, and parking space. $250 per month. A&H Developers, Inc., 4220 Central Ave. N.E., Minneapolis 21, St.-1-6638.

PLAN for Psychiatric Residency for July, 1964? NIMH General Practitioner program: $12,000 yearly, partially tax free. Three-year approved, balanced didactic and clinical training. In Michigan's vacationland. Dr. Curtis W. Page, Training Director, Traverse City State Hospital, Traverse City, Mich.

WANTED — General Practitioner for medical center in growing Minneapolis suburb as partner, associate or assistant. Call MIdway 8-8618 or TUxedo 8-5112, or write to: Burnsville Medical Center, Savage, Minn.

WANTED: Young GP to join central Minnesota group. New clinic and hospital, fine schools. Excellent golf, beach, hunting, fishing. $12,000 first year, full partnership to follow. Long Prairie Clinic, Long Prairie, Minn.

WANTED: General practitioner preferably under 60, interested in psychiatry, or physician with psychiatric training and/or experience, for staff at the Moose Lake State Hospital. Forty-hour week, annual vacation, sick leave, State and Federal retirement benefits. Night and weekend duty on rotation basis with credit for overtime. Salary varies depending on Minnesota license and American Board status. ECFMG certificate acceptable. House, including heat and light, provided in addition to salary. Write Moose Lake State Hospital, Henry Hutchinson, M.D., Superintendent, Moose Lake, Minn.

IDEAL general practiee for sale. New air-conditioned building and equipment. National average in visits and income. Many advantages. Town of 1,000. Write: T. H. Lester, M.D.; Browns Valley, Minn.

WANTED: General practitioner by established three-man group in own building, full equipped. Southwestern Minnesota — county seat — population 3,500. New hospital — fine churches — good schools, public and parochial. Golf club — grass greens. Hunting and fishing. Starting salary with opportunity for partnership. No initial investment necessary. Write: Box 199, care of MINNESOTA MEDICINE, St. Paul. 55102

GENERAL PRACTITIONER for well-established high grade general practice in St. Paul. Excellent hospital facilities. Good earnings. Share calls. Salary to start leading to partnership. Write Box 231; MINNESOTA MEDICINE; 496 Lowry Medical Arts Building; St. Paul. 55102

GENERAL PRACTITIONER wanted to associate with a general practitioner in a West Central resort town. Hospital across street from Office. Write Gordon E. Lee, M.D., Glenwood, Minnesota.

WANTED: General Practitioner to join Central Minnesota six man group. Excellent new 130 bed hospital with open staff. New offices, 25,000 drawing area, salary open, excellent schools, golfing, hunting, fishing, swimming, etc. Write: MINNESOTA MEDICINE, Box 243, 496 Lowry Medical Arts Bldg., St. Paul. 55102

G. P. active, suburban, young practice seeking an associate. New spacious office, alternating calls. Early partnership for acceptable person. Hospital affiliations with Methodist and Fairview. Contact: H. J. Racer, M.D. or R. K. Simmons, M.D., 8040 Penn Avenue South, Bloomington, Minnesota.

GENERAL PRACTITIONER in town of 1100 with trade area of 6,000 or more. Modern clinic available with hospital in county seat a few miles away. Financing available. Write MINNESOTA MEDICINE, Box 237, St. Paul, Minnesota. 55102

WANTED — RADIOLOGIST: Certified or board eligible, trained in diagnosis, therapy, special techniques, and use of isotopes; to serve unusually attractive Midwest community. Trading area of 40,000 served by 25 doctors. Modern 150 bed hospital under construction soon. Progressive professional environment. Exceptional financial opportunity. Write: MINNESOTA MEDICINE, Box 242, 496 Lowry Medical Arts Building, St. Paul, Minn. 55102

A FIFTH EXPERIENCED GP for high quality, four-man practice will facilitate realistic rotation for study, teaching, vacation and night call. Early partnership. Roger Lienke, M.D., Robbinsdale Clinic, Minneapolis. Telephone 533-2534.

OPPORTUNITY! — This community is seeking two general practitioners to locate in a spacious, fully equipped $80,000 clinic to be completed in the city this fall. Brillion has a population of 1,800 and three major industries with a combined employment of 800, and a total annual payroll of $4,000,000. The needs of industry alone will easily support two doctors. Brillion is located in one of the richest agricultural areas in Wisconsin, and the living conditions, working conditions, and income potential are excellent. Housing is available. Write or phone: Oliver C. Wordell, % The Brillion Iron Works, Inc., Brillion, Wis.

GENERAL PRACTITIONER — 12 bed hospital, well-equipped laboratory and X-ray department. Well staffed hospital, must be able to do surgery. For more information write to: Leola Community Hospital; Leola, S. D.

One of the hardest secrets for a man to keep is his opinion of himself.

Those who play with cats must expect to be scratched.—Cervantes



A MODERN PRIVATE SANITARIUM

for the Diagnosis, Care and Treatment of Nervous and Mental Disorders

MAIN BUILDING — *One of 8 Units in "Cottage Plan"*

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Located on beautiful Lake St. Croix, 18 miles from the Twin Cities, it has the advantages of both City and Country. Every facility for treatment provided, including recreational activities and occupational-therapy under trained personnel. Close supervision given patients, and modern methods of therapy employed. Inspection and cooperation by reputable physicians invited. Rates very reasonable. Special rates given to custodial patients.

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Howard J. Laney, M.D.
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Consulting Neuro-Psychiatrists
Hewitt B. Hannah, M.D., Andrew J. Leemhuis, M.D.
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Superintendent
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Avoids overlapping coverages or loopholes between individual policies. Write for explanatory booklet.

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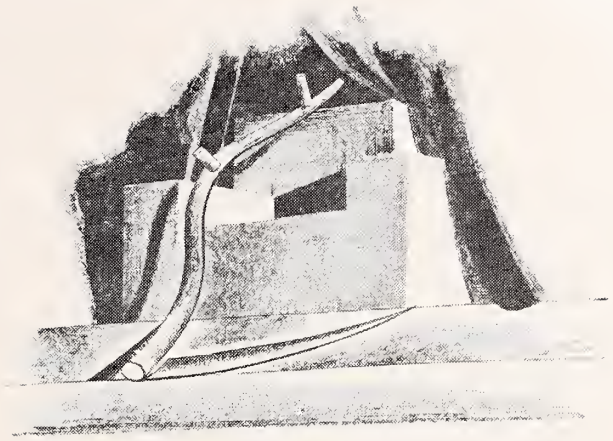


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In Memoriam

DONALD CHURCH BALFOUR

Dr. Donald C. Balfour, 80, director emeritus of the Mayo Foundation for Education and Research, died July 25 in Rochester. He was born in Toronto and received his degree in medicine from the University of Toronto. Joining the Mayo Clinic in 1907, Dr. Balfour also became head of a division of surgery at the University of Minnesota at a later date.

His honorary degrees and awards were numerous. President Harry Truman gave him a certificate of merit in 1948 for outstanding service in the war, and the University of Minnesota made him a "Builder of the Name" in 1950. In 1951 Northwestern University, Evanston, presented him with a Centennial Award for the Northwest Territory. He was also an honorary fellow of the Royal College of Surgeons of England.

Dr. Balfour was a member of the American Surgical Association, Southern Surgical Association, Western Surgical Association, American College of Surgeons, a 50 Club member of the Minnesota State Medical Association and a member of the American Medical Association and the Zumbro Valley Medical Society.

He is survived by a daughter and three sons, two of whom are Dr. Don C. Balfour, Jr. of Los Angeles and Dr. William M. Balfour of Lawrence, Kansas.

ALBERT E. BOOTH

Dr. Albert E. Booth, 91, former chief of staff at St. Barnabas Hospital in Minneapolis, died July 29. He was born at Paterson, New Jersey and received his medical degree from the University of Minnesota.

An early member of the American College of Surgeons and former chief of a surgical section of Minneapolis General Hospital, Dr. Booth was a 50 Club and Life Member of the Minnesota State Medical Association and a member of the American Medical Association and the Hennepin County Medical Society He was also a member of Masonic Lodge 316, Scottish Rite and Zuhrah Shrine.

Dr. Booth is survived by his two sons.

HERBERT WM. PETERSON

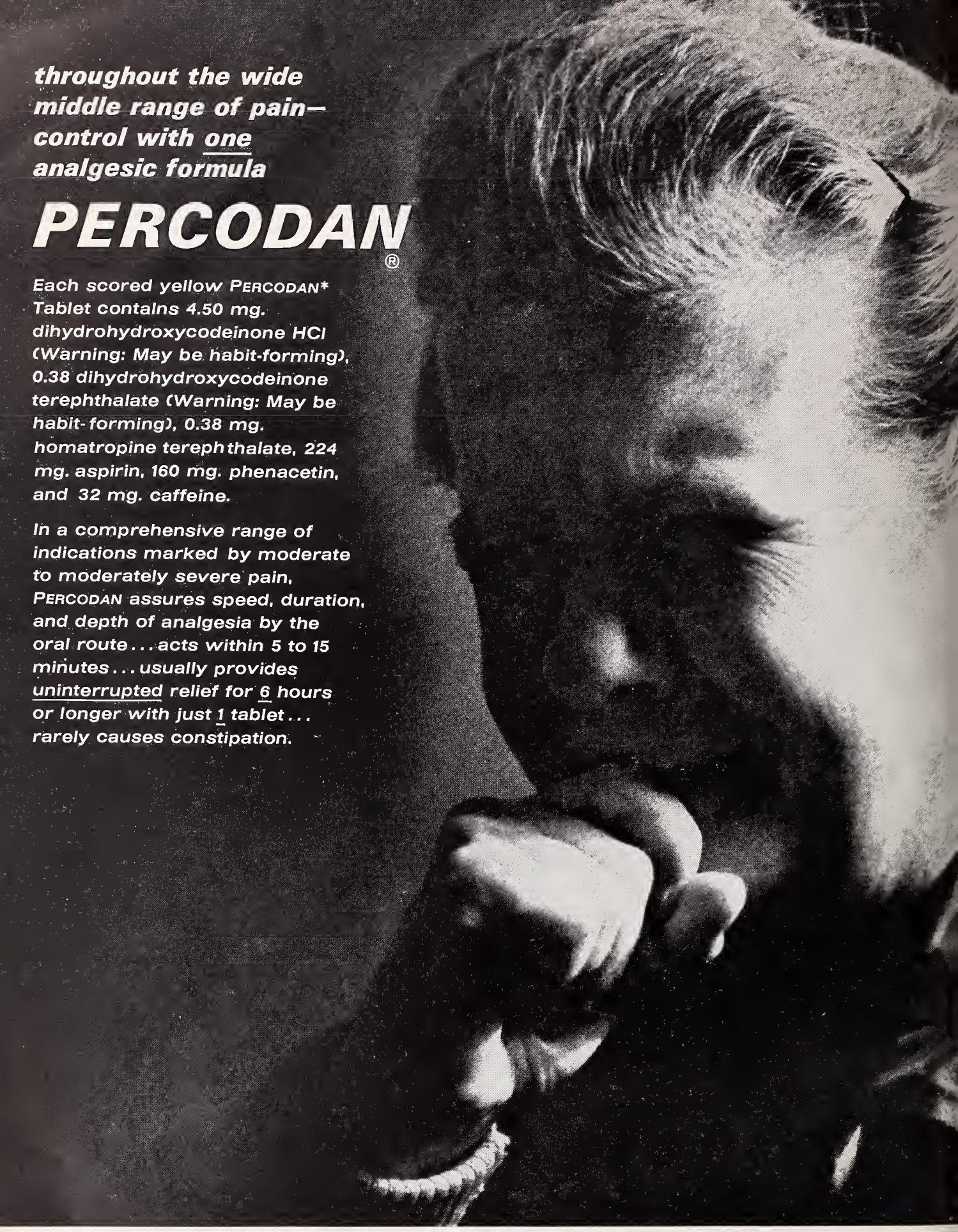
Dr. Herbert William Peterson, 62, Minneapolis physician, died July 30th. A lifelong resident of the Minneapolis area, Dr. Peterson graduated from the University of Illinois Medical School.

He was a member of Phi Beta Pi medical fraternity, the Minneapolis Surgical Society, the American College of Surgeons, the Hennepin County Medical Society, the Minnesota State Medical Association, the American Medical Association and the Minneapolis Athletic Club.

Dr. Peterson is survived by his wife, and a son, Dr. Herbert William Peterson, Jr.

Self Discipline

Since the days of Pythagoras it has been recognized that a world of law implies a life of self-discipline if that life is to reach its highest development. Thus in an era when many old conventions become outworn, the clear teaching of science is of especial value: If man will learn the truth and abide by it, the truth will make him free. — Arthur H. Compton



throughout the wide middle range of pain—control with one analgesic formula

PERCODAN®

Each scored yellow PERCODAN* *Tablet contains 4.50 mg. dihydrohydroxycodeinone HCl (Warning: May be habit-forming), 0.38 dihydrohydroxycodeinone terephthalate (Warning: May be habit-forming), 0.38 mg. homatropine terephthalate, 224 mg. aspirin, 160 mg. phenacetin, and 32 mg. caffeine.*

In a comprehensive range of indications marked by moderate to moderately severe pain, PERCODAN *assures speed, duration, and depth of analgesia by the oral route . . . acts within 5 to 15 minutes . . . usually provides uninterrupted relief for 6 hours or longer with just 1 tablet . . . rarely causes constipation.*

Average Adult Dose—1 tablet every 6 hours. **Side Effects and Contraindications**—Although generally well tolerated, PERCODAN may cause nausea, emesis, or constipation in some patients. PERCODAN should be used with caution in patients with known idiosyncrasies to aspirin or phenacetin, and in those with blood dyscrasias. **Also available:** PERCODAN®-DEMI, containing the complete PERCODAN formula but with only half the amount of salts of dihydrohydroxycodeinone and homatropine. Both products are on oral Rx in all states where laws permit. Narcotic order required. **Literature on request.**

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Physician's Diary

Dr. Owen H. Wangensteen, chairman of the University of Minnesota surgery department, is one of the twelve living past presidents of the American College of Surgeons, who will be featured at the surgeons' annual meeting in San Francisco in October.

* * *

Dr. H. J. Elliott has left Hayfield to serve a year with the Congo Protestant Relief Agency as part of the "Operation Doctor" in missionary work there.

* * *

New Locations: Dr. Orville Hable began the practice of medicine at the Buffalo Lake Clinic on July 1st. . . . **Dr. George F. Wagoner** of Detroit, Michigan, has joined the staff of the Lenont-Peterson Clinic in Virginia . . . **Dr. Donald Maus** will join **Dr. W. E. Hart** and **Dr. Matthew Smorstok** in the practice of medicine at the Hart Hospital in Monticello. . . . **Dr. Robert B. May** has joined the staff of the Veterans Administration hospital in St Cloud. . . . **Dr. Jerry Green** joined **Dr. R. Popoff** at the Oliver Clinic in Graceville July 1st. . . . **Doctors John Sutherland** and **Harper F. Willis, Jr.** have joined the staff of the Louis Weiner Memorial hospital in Marshall. . . . **Dr. Leonard H. Blackwell** joined the Glencoe Medical Clinic in July. . . . **Dr. Lowell Brown** of Detroit has joined the Tyler Medical staff. . . . **Dr. Roger Bush** has become associated with the Owatonna Clinic. . . . **Dr. D. A. Bergeron** has left the Minnesota Valley Medical Associates of LeSueur to receive a fellowship in internal medicine at the University of Minnesota and **Dr. A. D. Walden** will join the group. . . . **Dr. Bemis Johnston** of St. Paul will join the staff of the Litchfield Clinic. . . . **Dr. Gerald E. Cotton** is practicing in Fosston at the Roholt Clinic. . . . **Dr. Richard C. Travis** has joined the Elk River Clinic. . . . **Dr. Dean Clarke** has joined the medical staff of the Faribault Medical Center. . . . and **Dr. William Fleeson,** assistant dean of the University of Minnesota medical school has left the university to assist in planning a new medical school for the University of Connecticut.

Dr. C. Einar Norberg, Cloquet, has been elected deputy treasurer of the Board of Managers of the Lakeshore Lutheran Home for Aged in Duluth and named to the board of managers of Bethesda Lutheran hospital in St. Paul.

* * *

Doctors: Jack L. Pulec, Gerald J. Kavanaugh, John Joyce, James A. Gregg, Howard F. Taswell, Stafford W. Gedge, Paul G. Belau and Donald E. Waite have been appointed to the staff of the Mayo Clinic in Rochester.

* * *

Dr. Malcolm M. Hargraves, Mayo Clinic blood specialist, received the American Motors Conservation Award at the League's annual convention recently for his work in the field of conservation.

* * *

Dr. William J. Muesing of New Ulm recently was made a diplomate of the American Board of Surgery.

* * *

Dr. Rolf Hovde day was recently held in Winthrop honoring Dr. Hovde for his forty-five years service to the community.

* * *

Dr. H. Paul Wendt of Thief River Falls received a certificate of appreciation from Lieut. Col. Murley Reep, state director of selective service for his many hours of faithful performance as medical advisor to the local selective service board.

* * *

Dr. Joseph Berkson of the Mayo Clinic has been made an honorary fellow of the Royal Statistical Society of London. This society, oldest of its kind in Europe, confers this fellowship on foreigners who have made important original contributions to statistics and has been awarded to only 10 statisticians.

* * *

Dr. B. T. Bottolfson has returned to Moorhead from London where he has been studying advances made in his specialty, ear-eye-nose and throat.

Lifts depression.



"I feel like my old self again!" Thanks to your balanced therapy with 'Deprol', her depression has lifted and her mood has brightened – while her anxiety and tension have been calmed. She sleeps better, eats better, and normal drive and interest have replaced her emotional fatigue.

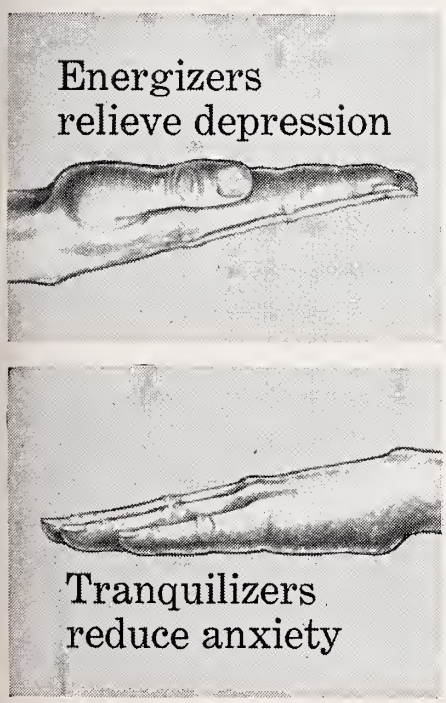
as it calms anxiety

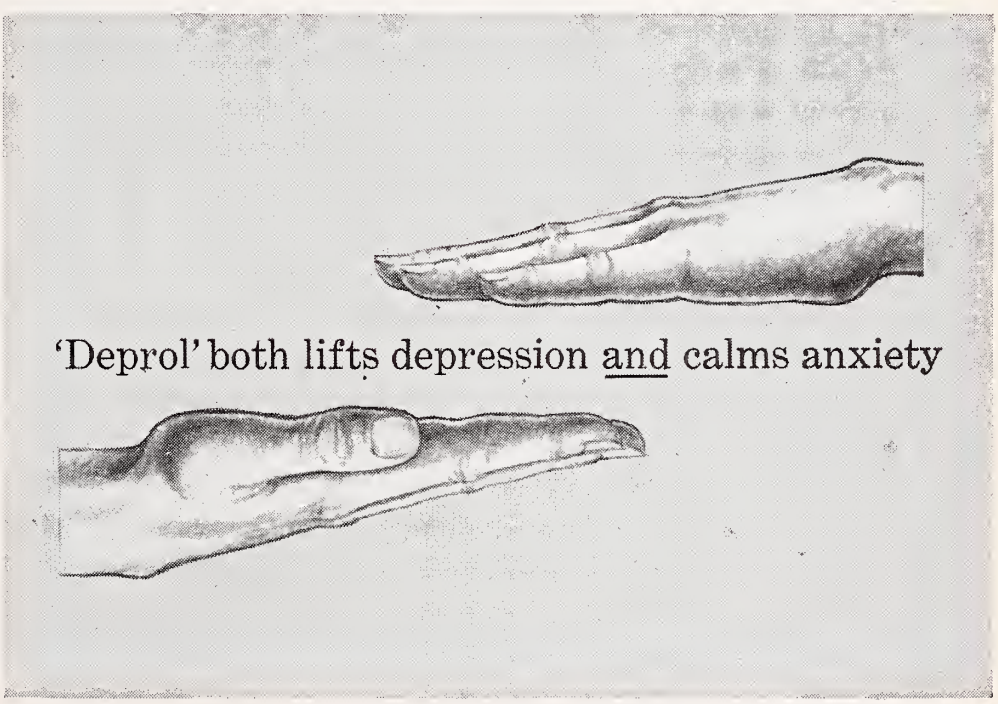
Brightens mood...relaxes tension

Energizers may stimulate the depressed patient, but they often aggravate anxiety and insomnia. Tranquilizers may help the anxious patient, but they often deepen depression and emotional fatigue.

'Deprol' avoids these "seesaw" effects; it relieves both depression and anxiety. Moreover, it does not cause liver damage, psychotic reactions or changes in sexual function.

Slight drowsiness and, rarely, allergic reactions, due to meprobamate, and occasional dizziness or feeling of depersonalization in higher dosage, due to benactyzine, may occur. Meprobamate may increase effects of excessive alcohol. Use with care in patients with suicidal tendencies. Consider possibility of dependence, particularly in patients with history of drug or alcohol addiction. Withdraw gradually after prolonged use at high dosage.





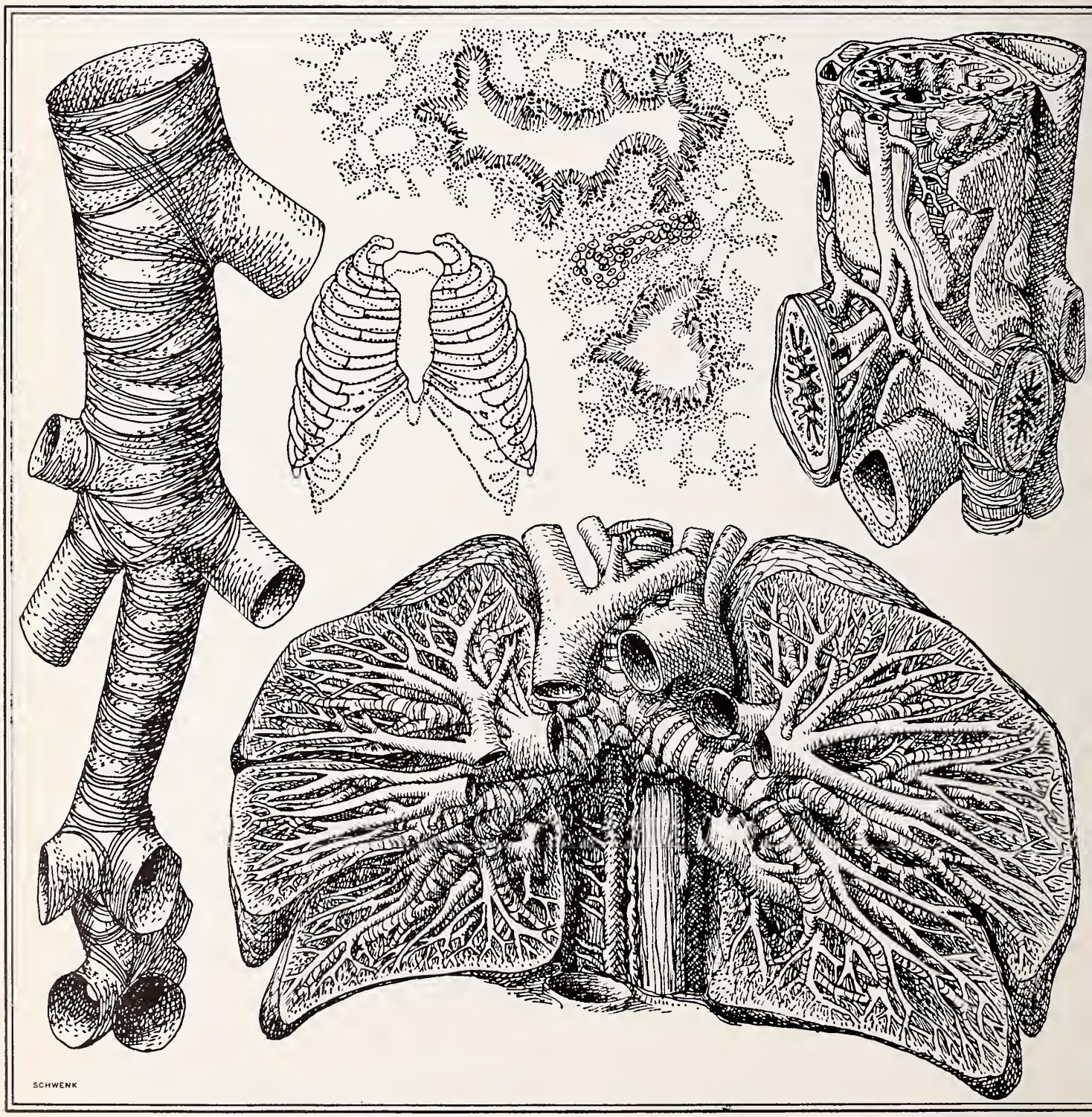
Usual Dosage: 1 tablet q.i.d. May be increased gradually, as needed, to 3 tablets q.i.d.; with establishment of relief, may be reduced gradually to maintenance levels.

▲Deprol▲®

meprobamate 400 mg.
+ benactyzine 1 mg.

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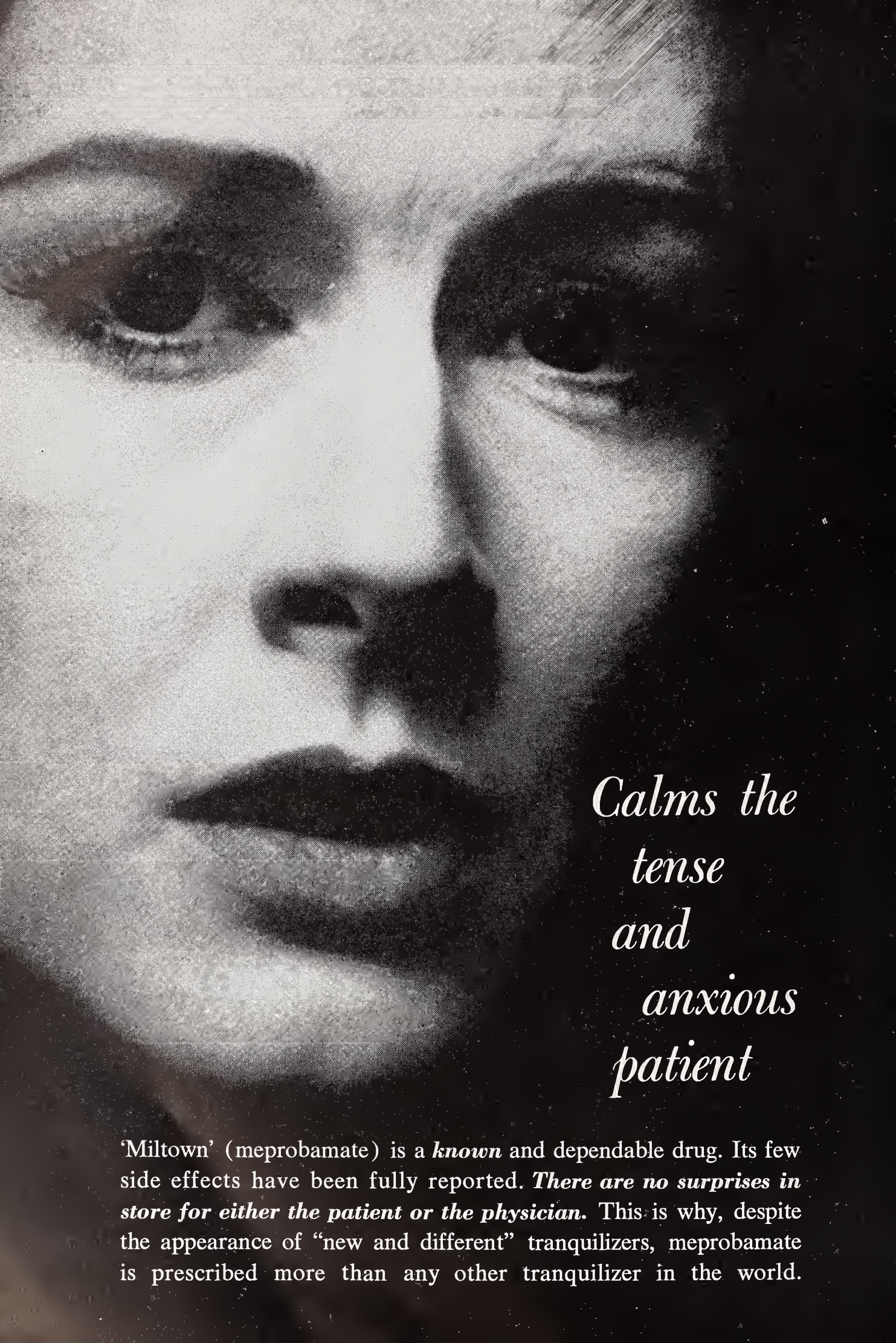
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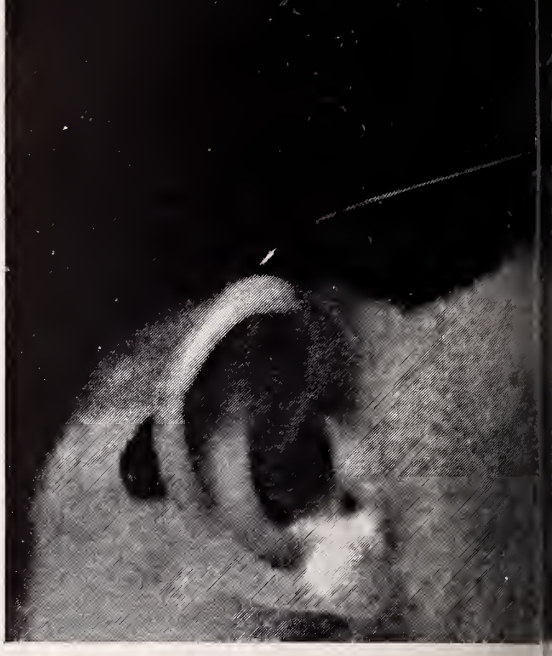
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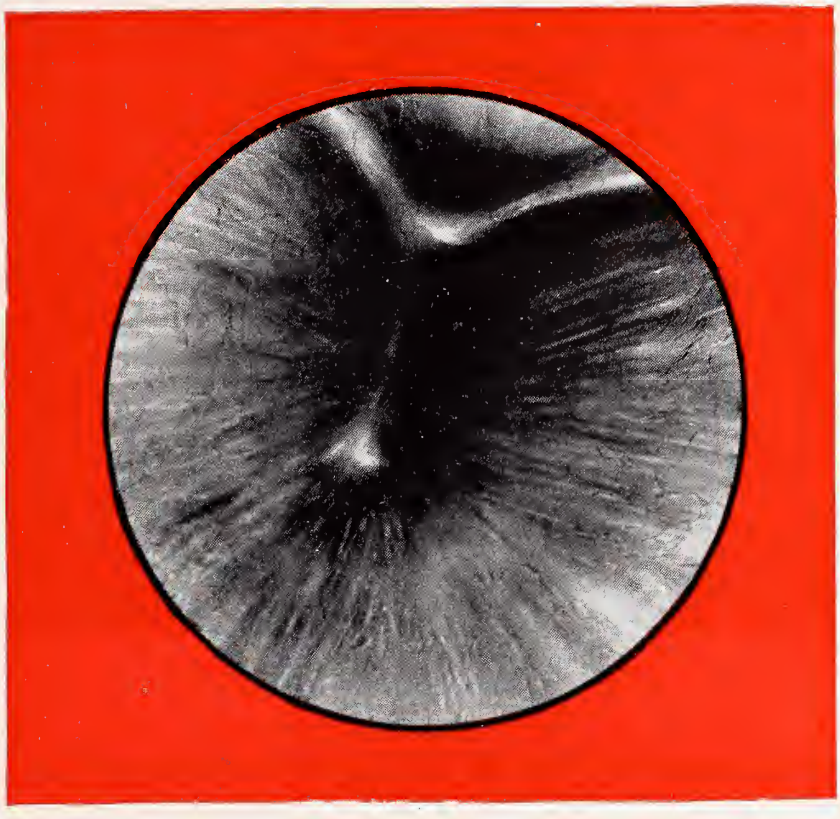
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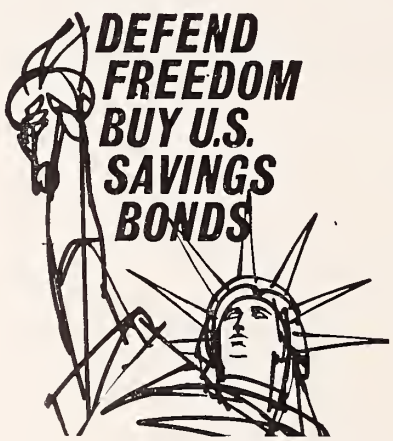
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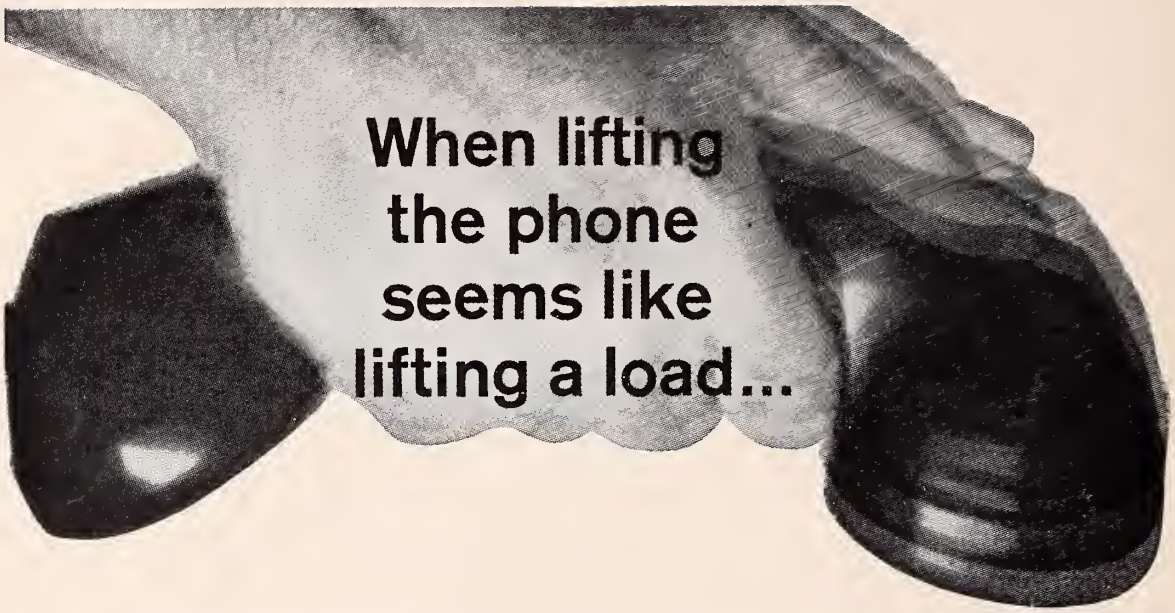
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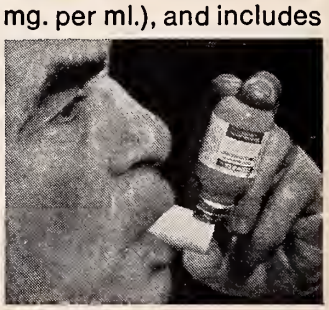
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President's Letter

A number of bills have been introduced in the present session of Congress, with regard to the use of animals for experimental or teaching purposes. These bills all have the avowed purpose of insuring humane care of animals used for experimental purposes. It is obvious that everyone agrees wholeheartedly with this objective.

After reading the proposed bills, however, it is apparent that if enacted, the effect of this legislation will be to seriously impede medical research and progress in medical education.

While the various bills which have been introduced (now six in number) contain varying provisions, the basic purpose is obviously to license, limit and police research with animals.

Space does not permit a detailed analysis of each of these bills. However, some of the provisions of S. Bill 533 introduced by Senators Clark, Neuberger and Young are cited as illustrative.

S. 533 states that the policy of the United States is that vertebrate animals shall be used for scientific research only when no other feasible and satisfactory method can be used to ascertain biological and scientific information.

This bill provides that no grant shall be made by any agency of the government to anyone using live animals in research, experiments, tests, or training unless the person applying for or receiving the grant has a certificate of registration issued by the Secretary of Health, Education and Welfare. In order to secure such certificate of registration the bill provides that the applicant submit to the Secretary of Health, Education and Welfare a considerable amount of detailed information including a brief statement of what is to be done to the animals and the objective of the work. It is further provided that the Secretary of Health, Education and Welfare shall license individuals to engage in experiments or tests upon their submitting an application in such form as the Secretary shall prescribe. Thus any amount of detail may be required.

The bill provides that all animals used in practice of surgery shall be killed without being allowed to recover consciousness.

Representatives of the Secretary shall have access to the animal premises and records of the agency or person and shall be authorized to destroy animals in accordance with rules and regulations to be issued by the Secretary.

Annual and additional reports shall be submitted to the Secretary which shall specify the number of animals used, the procedures employed and such other matters as the secretary may prescribe.

It is apparent that the enactment of such a bill will result in little or no improvement in the care of animals except such as may come from the restrictions of their use in research or teaching. It is further apparent that notwithstanding the laudable objective, the enactment of such legislation will very seriously hamper and obstruct medical research and teaching.

The proposed legislation is being opposed by the National Society for Medical Research which is comprised of 672 organizations and institutions concerned with research in biology and medicine. It is also opposed by a task force organized by the American Medical Association which includes six major national organizations, the American Medical Association, the American Hospital Association, the American Veterinary Medical Association, the Association of American Medical Colleges, the Association of State Universities and Land Grant Colleges and the National Society for Medical Research.

(Continued on Page 1005)



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Pulmonary Function Testing

Analysis of 200 Consecutive Cases

EVERETT H. KARON, M.D.*
St. Paul, Minn.

EDWARD S. BEAR, M.D.**
Detroit, Mich.

THE PULMONARY Function Testing Laboratory of the Charles T. Miller Hospital of Saint Paul, Minnesota, was opened in June, 1961. At the time of its establishment, this laboratory was the first of its kind in a private hospital in the made available to all physicians in the area. The records of 200 consecutive tested patients were reviewed. We have compared the results in several areas with a similar study from the Mayo Clinic.[1]

Methods

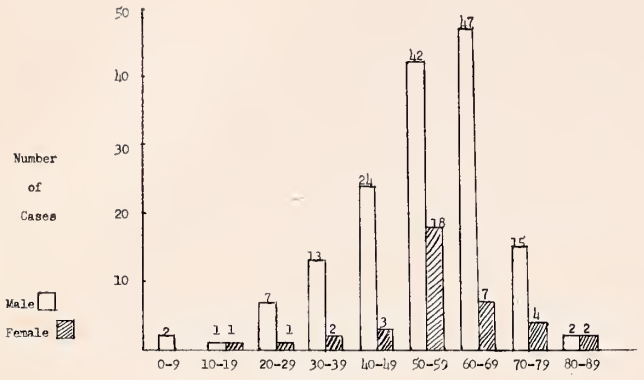
Patients were referred for pulmonary function tests by practicing physicians in the area and were of both inpatient and outpatient status. The tests ordered varied according to the desire of the referring physician. No standard battery of tests was done; however, several combinations of tests were available. In all instances, at least a timed vital capacity, respiratory tracing, and minute volumes were determined. The apparatus employed was a Collins 13.5 liter respirometer. Residual volumes were determined by the closed helium dilution method.[2] Arterial partial pressure of carbon dioxide was estimated by a rebreathing technique using a Spinco-Beckman rapid infra-red carbon dioxide analyser.[3,4] The patients were tested between June, 1961 and December, 1962.

Results

Age and Sex

Graph I illustrates the age and sex distribution of the 191 different patients studied, nine of whom were studied twice in this series. The average age of 153 males (80.4% of the total) was 54.4 years; the average age of 38 females

*Department of Internal Medicine and Director, Pulmonary Function Laboratory and Department of Inhalation Therapy, Charles T. Miller Hospital, St. Paul.
**Intern, Charles T. Miller Hospital, St. Paul. Presently Resident in Internal Medicine, Henry Ford Hospital, Detroit, Mich.



Graph 1

was 56.1 years, the majority falling into the 50 to 70 year age group. Twelve of the male subjects in the 20 to 40 year age bracket had no known pulmonary disease and were referred for pre-employment baseline studies.

In-Out Patient Status

Table 1 shows the patients' status at the time of testing. The majority were inpatients at Miller Hospital, and less than 10% inpatients at other local hospitals. Approximately one third tested were outpatients and included several from outside the metropolitan area.

The Referring Physician

Of interest was the type of practice of the referring physicians. As seen in Table 2, the largest group were internists. The low percentage of referrals from general practitioners is most likely due to the fact that the Miller Hospital staff is comprised primarily of physicians in the various specialty fields.

Tests Ordered

Table 3 shows the type of tests ordered, the most numerous being the combination of respiratory tracing, timed vital capacity, and maximal breathing capacity. A small number of subjects underwent testing before and after a standard bronchodilator treatment. The limited number of carbon dioxide determinations was due to the unavailability of the apparatus during much of the period covered in this review.

Reason for Referral

Table 4 shows the primary reason for referral of a patient. The largest percentage were those with known pulmonary disease, studied for objective appraisal of the degree of pulmonary impairment present. Pulmonary function studies as an aid in diagnosis were ordered in 41, or 20.5% of the total, compared with 23% in the Mayo Clinic series. Our group included five patients in whom a differential diagnosis between primary and secondary polycythemia was entertained. Pulmonary function studies were used in the preoperative evaluation of 40 patients (20% of the total), 31 of whom were scheduled for intrathoracic procedures. These figures are also quite similar to the Mayo Clinic figures of 17%. Twenty-four of the patients were referred to the laboratory for disability evaluation from

TABLE 1
Patient Status at Time of Testing

Hospital inpatient		138	69%
Chas. T. Miller	119		
Other hospital	19		
Outpatient		62	31%

TABLE 2
Referring Physicians' Type of Practice

Internal medicine	128	64%
General or thoracic surgery	42	21%
General practice	24	12%
Other specialty*	6	3%

*Includes 3 urology, 2 ENT, and 1 gynecology

TABLE 3
Types of Specific Pulmonary Tests Ordered

Vital capacity, respiratory tracing, and maximal breathing capacity	110	55%
Complete lung volumes, respiratory tracing, and maximal breathing capacity	52	26%
Vital capacity and respiratory tracing	38	19%
Studies before and after standard bronchodilator treatment*	11	
Estimated arterial pCO_2 determination*	9	

*These studies done in combination with one of the above volumetric determinations

TABLE 4
Reason for Referral for Pulmonary Function Testing

Assessment of known pulmonary disease		74	37.0%
For diagnostic aid, including polycythemia		41	20.5%
Preoperative evaluation		40	20.0%
Intrathoracic procedure	31		
Extrathoracic procedure	9		
Disability evaluation		24	12.0%
Pre-employment evaluation		12	6.0%
Followup examination		9	4.5%

Minnesota state agencies. Twelve were referred from a local industry for baseline studies prior to starting work with beryllium compounds. The nine patients studied a second time in this series were referred to evaluate their treatment or to follow the course of their disease. The effect of bronchodilator drugs was in no case the primary reason for referral.

Table 5 shows the results in the 41 patients referred for diagnostic assistance. The determination of the final diagnosis was aided in over half of the patients, and in only one case were the pulmonary function studies of no apparent value. The previous clinical diagnosis was altered in 10 of the 41 patients. In six the clinical impression was confirmed. In several instances, the clinical diagnosis of emphysema was not substantiated by function testing.

TABLE 5
Results in 41 Patients Referred for Diagnostic Aid

Clinical diagnosis aided	24	58.6%
Clinical diagnosis altered	10	24.4%
Clinical impression confirmed	6	14.6%
Clinical impression unaided	1	2.4%

Comment

In the past two decades, a number of physiologic tests for the quantitative evaluation of pulmonary function have been made available to the practicing physician.[5] Such tests should be as important to the practice of good medicine as are similar tests of hepatic or renal function. In addition to their value as an index of respiratory competence, these tests have led to a better understanding of pulmonary physiology in both health and disease states. Respiratory impairment may be detected before abnormal clinical or X-ray findings are seen.

The tests are not meant to supplant a careful history, physical examination, or ancillary diagnostic procedures. They do not make an etiologic diagnosis or localize the abnormalities geographically. They do indicate the specific lung function that is impaired, if enough lung tissue is involved.

Basically, pulmonary insufficiency can be classified as obstructive or restrictive in nature. Generally, there is a combination of these two with one or the other predominant. Obstructive ventilatory impairment is characterized by varying combinations of decreased vital capacity and maximal breathing capacity, decreased rates of airflow during both inspiration and expiration, increased residual volume and uneven distribution of inspired gas through the lungs. The common obstructive diseases are emphysema, chronic bronchitis, and asthma. Airway obstruction may improve following the use of an aerosol bronchodilator treatment. This is especially true of bronchospastic disorders such as asthma. The degree of improvement following such treatment may be used as a guide to the value of bronchodilator agents in the therapy of the patient.[1]

Restrictive disorders are characterized by proportionally reduced lung volumes without airway obstruction. The maximal breathing capacity is generally diminished, but to a lesser degree than the reduction of vital capacity. Restrictive impairment may be seen in diseases of the pleura or thoracic cage as well as in pulmonary fibrosis or congestive heart failure. Pulmonary fibrosis with an associated alveolar-capillary block will show hyperventilation and arterial hypoxemia as well as restrictive features.

The majority of the 200 patients in this study had known pulmonary impairment, with emphysema and chronic bronchitis being the most common ailments. As mentioned by Divertie and his coworkers, restrictive types of pulmonary impairment are often difficult to assess clinically and are greatly aided by the employment of pulmonary function studies. Likewise, the diagnosis of functional dyspnea often may be made only by pulmonary function studies.

Our figures showed remarkable correspondence with the study from the Mayo Clinic. The reasons for referral and the diagnostic aid afforded in problem cases were very similar in both studies. This suggests a somewhat uniform utilization of such ancillary laboratory services in this general area of the country.

Better utilization of the pulmonary function laboratory in a private hospital may be brought about in several ways. Usage by the hospital staff is often slow when new tests are made available. This is especially true when physicians may not be acquainted with the indications for or the value of such tests. More frequent use of pulmonary function studies prior to surgery in

patients who have no obvious pulmonary impairment would seem to be of value. Such studies, especially in patients with a chronic cough, may alert the surgeon to possible postoperative pulmonary complications and may promote proper preoperative preparation. Of the patients tested in our laboratory preoperatively for either intrathoracic or extrathoracic procedures, none was refused surgery on the basis of impaired respiratory reserve. However, in at least two instances the scope of resectional lung surgery was limited by abnormal pulmonary function studies prior to surgery.

Pre-employment baseline studies may be of value to industry in areas where the employee is exposed to lung irritants. In our study, those tested before employment were to work with beryllium compounds.

It is hoped that with further emphasis on the need for objective data regarding various disease states, the pulmonary function laboratory will be called upon more often by local physicians for such information.[6] The acquisition of more equipment should enable us to perform many of the tests available at research or teaching institutions. We anticipate the utilization of the pulmonary function laboratory to continue to increase, as the availability and value of such ancillary service is made known to the practicing clinician.

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IT'S THE LAW

Religious Freedom Does Not Permit Parent to Deny Child Necessary Medical Care

The Court of Appeals of Maryland ruled that the mother's religious practices could not be permitted to interfere with the welfare of her children.

The parents were both Roman Catholics at the time of their marriage. The father is a licensed physician and surgeon; the mother was a registered nurse. The mother became a Jehovah's Witness and was divorced by the father. The mother was given custody of their three children.

The youngest child, a boy, suffered a bleeding ulcer. Although advised that the boy might die if he did not receive a blood transfusion, the mother refused to consent because of her religious beliefs. Doctors obtained telephone consent from the father, a transfusion was given, and the boy recovered. The court found that he would have inevitably died if he had not received the transfusion. The hospital, acting through the father's attorney, also obtained a court order authorizing the transfusion.

Editor's Note: This decision contains an excellent review of cases relating to religious beliefs or practices interfering with the health and welfare of children.

Levitsky v. Levitsky, 190 A. 2d 621 (Md., May 7, 1963)

Fat Tolerance Studies in Ischemic Heart Disease

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In most studies of the relationship between the dietary fat intake and the prevalence of ischemic heart disease attention has been directed towards the total daily intake expressed as the percentage of calories consumed as fat. A very good case could be made for this hypothesis where there were very wide differences in prevalence or mortality of the disease. Where the mortality differences were less the hypothesis was less convincing and universal acceptance was not readily at hand. When it became known that the feedings of hard fats and liquid oils were associated with different metabolic effects the dietary fat hypothesis became more convincing but once again universal acceptance was not at hand. In order to fit all the observed facts one had to postulate a multifactorial aetiology, namely a possible interplay with genetic factors or with other environmental factors such as mental stress, lack of exercise or cigarette smoking. An alternative postulate was that the relationship was not a simple one. It was possible that the amount and nature of the dietary fat intake influenced the rate of development of ischemic heart disease but it did so in a complex manner.

In these epidemiological studies the amount and nature of the dietary fat eaten daily have been correlated with the serum lipid changes which in turn have been correlated with the prevalence of or increased risk of developing ischemic heart disease. Little attention has been paid to the manner in which this fat intake has been consumed throughout the day. As was pointed out in 1957[1] an equally plausible explanation for the dietary fat theory could be found in the daily food habits with regard to the amount of fat eaten at one sitting and it might well be that both factors were operating in the development of ischemic heart disease. It is just as easy to demonstrate that this factor could differentiate Americans from Japanese, South African whites from Bantu, rich men from poor men, pre-war and post-war from war time conditions etc.

Recently an increasing amount of attention has been paid to the more immediate metabolic effects of a large fat meal. For some time it has

been known that following a standard fat meal patients with ischemic heart disease exhibit a more intense and prolonged lipemia than persons not so afflicted. Indeed more than a decade previously it was postulated[2] that this prolonged contact of the fat with the arterial intima could be the mechanism for the development of atherosclerosis. Despite this the phenomenon has received scant attention until recently. During the lipemic phase many other effects have been demonstrated; many bearing relationships to possible pathogenetic processes in ischemic heart disease. For instance a large number of studies emerged to claim that a shortening of blood clotting time occurred and that an adverse effect on the rate of fibrinolysis was seen. For many years too, Swank has shown in several species of experimental animals that during the lipemic phase there has been marked aggregation of red cells and an increase in viscosity. In certain species the fat feeding has resulted in abnormal electrocardiographic and electroencephalographic tracings and death would ensue from hours to a few days from widespread tissue ischemia from fat emboli and red cell aggregation.[3] Such effects in man would be difficult to demonstrate. Nevertheless it is well known that angina pectoris may be activated following a meal. Indeed this together with E.K.G. changes have been reported during the lipemic phase in fat tolerance tests.[4] Many of these claims however, have not been confirmed.

If this was an important mechanism in man one might argue that one would expect the accentuation of anginal symptoms following a fat meal to be more consistent and likewise that the onset of myocardial infarction might bear some relationship to the consumption of a fat containing meal. On the other hand on all the experimental studies to date there appears to be considerable individual variability in time relation of the effects shown, to the consumption of the meal.

Methods of Measuring Fat Tolerance

The technique has been the feeding of amounts of fat varying in different studies mostly between 50 and 100gms after an overnight fast. There have been no efforts to standardise the amounts fed between different investigators nor have there been studies comparing the effects of differing amounts of fat in the same individual. Earlier the degree of lipemia was measured by chylomicron counts. Later use was made of the simple technique of comparing the optical density at various periods after the meal with the fasting value. It is essential that a constant rate of centrifugation should be employed throughout to obviate any light scattering effects from variability in the platelet content of the plasma samples. This simple technique has been shown to correlate exceedingly well with chemical estimations of the neutral fat content and recently with the estimation of the total glycerides in the blood. This is understandable as the fat particles or chylomicrons that scatter the light are composed almost entirely of triglycerides. Repeated fat tolerances on different days show some variability, but in general the individual who exhibits a high lipemia will continue to do so and vice versa. In recent years fat tolerance has been studied too by an estimate of radioactivity in the blood following the feeding of I^{131} label triolein. There is some but not complete agreement between these two techniques. The type of fat fed has generally been milk fats and in some cases egg as well. One or two studies have compared feeding of the liquid oils with the harder fats and have claimed that the lipemia reaches its peak earlier and declines more rapidly when the former is fed.[5]

Observations

Over the years we have studied this phenomenon of the greater lipemia that occurs following the feedings of a standard fat meal in patients with ischemic heart disease. It was felt that mechanism whereby this occurred was worthy of study as it may provide a clue to the pathogenesis of ischemic heart disease. It was possible that the relationship was merely indirect in that both the greater lipemia and ischemic heart disease in turn was related to a third or common factor namely age, obesity, lack of exercise, diet etc. In several studies the effect of these factors has been studied.

Age and Sex

Earlier studies on patient and controls were not age matched and when certain studies[6,7,8] revealed that alimentary lipemia was more intense in older patients, a disparity in age was suggested as the reason for the higher lipemia

in ischemic heart disease. However the mean age for the elderly in these three studies was 75.6, 62 and over 70 years. In one of the studies the type of curve in a small group with a mean age of 50.3 years resembled the young group. In a much larger series[9] no differences were seen on comparing the 20–39 year old group with the 40–59 year old group. It would appear that this effect of age on the tolerance curve occurs only over the age of 60 years. In some of the earlier studies too, the groups were not matched according to sex. Barrit[10] later showed that amongst the controls the lipemia was less intense in females than in age matched males. Due to the wide overlap however, the differences were not statistically significant.

Body Build

Pomeranze et al[8] found a higher level of total fatty acids throughout the postprandial period when he compared eight extremely obese males with five age matched controls. In other studies on larger groups[1,11] the resultant degree of lipemia could not be correlated with the height, weight or degree of obesity as measured by the skinfold thickness.

Nature of the Preceding Diet

The customary diet has been shown to have an influence on carbohydrate tolerance and in our earlier studies[1] we found that of eleven patients who had had their dietary fat intakes restricted to less than 30% of the total calories for many months prior to the test only two exhibited high curves whereas in 12 others not so restricted only two had really low curves. In this same study the nature of the dietary fat intake was deliberately altered subsequently by inducing the subjects to consume 1 oz. corn oil twice daily. The tolerance tests one week and four weeks later showed significantly lower lipemic curves. In another study[8] similar findings were noted after 6 weeks on a diet containing less than 20g. fat daily. The reasons for these effects is not clear. If the customary diet was a factor in determining the tolerance to fat one might have expected differences in interracial surveys but this has not proved to have been the case. In Cape Town the customary fat intake of the Bantu is 17% of calories, calories, the Cape Colored 25% and the White 40%. In a study on 161 age matched males no inter-racial differences were found.[9] Despite these major differences in dietary fat intake, the polyunsaturated fatty acid intake of the three races is very similar. The above studies then are not really comparable. Nevertheless with respect to ischemic heart disease, differences have been found between patients and controls who had all been on the same hospital diet for some time before the test.[12]

Physical Exercise

There are studies that have failed to show any difference between ambulant and bed-ridden patients. The lack of any inter-racial difference in response[9] could imply that the degree of physical exercise preceding the test has no effect because in Cape Town the Bantu sample came mainly from the labouring classes and the whites generally lead a more sedentary existence. During the test severe physical exercise does appear to have a profound effect in that after the standard fat meal the degree of lipemia was far lower in the exercised fat meal the degree of lipemia was far lower in the exercised group as measured both by optical density[13] and by chemical means.[14] The reasons for this effect are not known.

Mental Stress

In the study by Becker et al[6] it was noted that four young individuals had abnormally prolonged and extensive lipemic curves. Two of these were children who were crying and the other two young adults who were apprehensive throughout. There appear to be no other studies recording these effects.

Other Factors

The role of the intestinal flora in determining fat tolerance was raised by Bouchier[11] who noted that patients who had recovered from minor surgical and orthopaedic procedures have a significantly lower lipemic curve than controls. He could not attribute this to the effect of the operation. All the patients had continued the parenteral penicillin and streptomycin that they had received prior to the operation. Other patients on penicillin and streptomycin likewise revealed lower curves. The effect was thought to

be due to the antibiotic suppression of certain intestinal bacteria, following the excretion of the antibiotics in the bile and into other intestinal tissues. In the same study he was unable to show that previous cigarette smoking habits or the presence or absence of a family history of ischemic heart disease influenced the fat tolerance test.

It would appear then that the greater lipemia seen in patients with ischemic heart disease is not present by virtue of the fact that each in turn are related to a third and common factor. On the other hand all studies are retrospective in the sense that a group of individuals with already developed disease are compared with unaffected individuals. Until a prospective study of this phenomenon is undertaken one cannot exclude the fact that the greater lipemia is the result rather than a factor leading to the cause of the disease.

The Mechanism at Play

Many studies have attempted to determine the mechanism responsible on the principle that at any one period the degree of lipemia represents the algebraic sum of processes of digestion and absorption of fat from the gut and the processes of clearing of fat from the blood occuring concurrently. As the differences between patients and controls are usually greater late in the postprandial period it was suggested that the patients lacked sufficient clearing factor and certain experiments using heparin to activate clearing substantiated this claim.[15,16,17]

Clearing Mechanism

This of course, could have been due to differences between patients and controls in the substrate, that is the physical or chemical state of suspension of the fat particles, or to differences in the activity of the enzyme, namely the clearing factor. Baker[18] used coconut oil emulsion as a substrate and could not detect any difference in clearing factor activity between controls and patients with myocardial infarction. In a study on matched pairs we[12] used the lipemic plasma of patients and controls as the substrate and incubated this in a four way cross over manner with the non-lipemic plasma of each pair after the administration of heparin. The lipemic plasma was cleared at the same rate in each system. It was concluded that the more intensive and more prolonged lipemia in the patients could not be explained by differences in the physical or chemical state of the fat particles in the plasma following the feeding of fat nor could the explanation lie in the heparin activated enzyme system. It was felt that absorptive mechanisms should receive more attention, but on the other hand it was pointed out that there was still no evidence that the clearing mechanism activated by heparin was similar to that which operates naturally.[19]

This view was strengthened by the finding that the differences on feeding fat orally to matched pairs were abolished when the same fat was given intravenously.[9] The criticism that intravenously administered fat is cleared differently from chyle can be countered by the fact that C^{14} label chylomicrons when instilled intravenously into patients with ischemic heart disease and in controls were also cleared at similar rates.[20]

Fat Digestion vs Fat Absorption

The outcome of all these studies has led us to compare fat digestion and fat absorption in persons with and without ischemic heart disease. The initial studies were directed towards gastric secretion. The patient and control groups were matched for age, sex and body weight. An augmented histamine test was carried out just prior to the fat tolerance test. As expected, the patients exhibited the greater lipemia. A somewhat unexpected finding was that over 40% of the patients as opposed to only 9% of the controls, failed to secrete acid in the basal state. The highest basal acid secretion recorded in the patients was 5.5 mEq./hr., whereas nearly a third of the control sample exceeded this figure.[21] An inverse correlation was found to exist between the basal acid secretion and the degree of lipemia in that the lower the basal acid secretion the higher was the lipemic curve and the converse held true. There was no correlation with the maximal acid output after histamine.

Heat Labile Factor

In order to elucidate this effect further, studies were carried out *in vitro* by incubating gastric secretion with a fat emulsion and noting

the clearing that followed. By the end of one hour figures of up to 42% clearance had occurred. Further experiments were therefore designed to test whether this clearing was due to the reflux of pancreatic lipase, to acid hydrolysis or the presence of a gastric lipase. It was found that pancreatic juice was unable to clear the fat emulsions at pH levels below 6.0. It is well known that acid per se, can hydrolyse triglycerides, the usual form fat exists in foodstuffs and considerable clearance occurred when the fat emulsion was incubated with the hydrochloric acid sodium citrate buffer at varying pH levels. Increasing the pH produced progressive diminution of clearance with negligible activity above pH 2.9. There were however many samples of gastric juice which could still clear the fat emulsion with a pH above 2.9 and below pH 6, the level below which pancreatic lipase appeared to be ineffective. Heating the gastric juice to 100° C for 5 minutes decreased but did not abolish the ability of gastric juice to clear the fat emulsion. Therefore it was concluded that in addition to acid present in gastric secretion there appeared to be an active heat-labile factor, possibly a gastric lipase. Further studies which have determined the degree of lipolysis by analyzing the breakdown of triglyceride to di- and monoglycerides and the liberation of free fatty acids have confirmed these findings.

At the present stage the significance of these findings can only be speculative. The role of the stomach in fat digestion may be important for the proper time relationships in presenting material to the intestine. The products of partial hydrolysis — the fatty acids and lower glycerides — have been shown to facilitate further hydrolysis by acting as efficient emulsifiers in combination with the bile acids. They are important too, for subsequent micelle formation.[22] Commencing lipolysis, even of a minor degree, in the stomach may prepare the fat for more complete digestion by the more powerful pancreatic lipase.

Deficient Lipolysis vs Ischemic Heart Disease

The greater alimentary lipemia seen in patients with ischemic heart disease could very well arise from deficient lipolysis in the gastrointestinal tract. Frazer[23] and Becker et al[6] have both shown that the simple addition of a lipase to a fat containing meal considerably reduced the degree of lipemia. There have been similar findings in later studies[24] where low blood lipase levels have been reported in patients with poor fat tolerance. Furthermore the feeding of an aminopolysaccharide extracted from hog's gastric mucosa has decreased the plasma lipid level in patients with atherosclerosis.[25,26]

This inverse relationship between the degree of gastric acidity and the degree of lipemia after a fat meal demonstrates that individual variability in the ability to digest fat in a dose response manner may determine blood lipid levels. In this way the variability in susceptibility to ischemic heart disease between subjects on similar fat intakes may be determined in the stomach. Once again emphasis should be laid on the fact that these are retrospective studies. Until a prospective study is undertaken one could interpret the findings of the lower gastric acid secretion in subjects with ischemic heart disease as being the result of generalized occlusive vascular disease rather than its cause. Nevertheless this individual variability in gastrointestinal lipolytic capacity in relation to the amount of fat eaten, in a substrate enzyme manner, may explain the view of Stare[27] that the present day habit of consuming most of one's daily fat intake at one sitting followed by little physical activity may be unhealthy. As Frazer[22] states there is no evidence that an increased amount of lipase is made available if the amount of fat ingested is greatly increased; absorption however, remains at over 95%. In the experimental animal and in man there is some support for this view. In man attention has been drawn to the lower serum lipid level seen when volunteers were changed to formula feeding where the fat intake is spread evenly throughout the day.[28] In the experimental animal "nibblers" have been compared with "meal eaters." When the total fat intake was spread evenly throughout the day lower serum lipid levels were found and less atherosclerosis was seen than when the same amount of fat was eaten at one or two sessions daily.[29,30]

Summary

1. Following a standard fat meal patients with ischemic heart disease exhibit a more intensive and more prolonged lipemia than do

controls. This cannot be attributed to differences in age, body build or nature of the diet immediately preceding the test.

2. As the differences were greatest in the later post-prandial phases it was felt that the patients lacked a sufficiency of clearing factor but experiments have not substantiated this claim. For instance fat instilled intravenously has been cleared at identical rates by the patients as by the controls. It was concluded therefore that the differences arose from different processes governing the entry of fat into the circulation.

3. Recent evidence suggests that the absorptive differences may arise from a deficiency of lipolytic activity in the stomach in the patients. This suggestion arose from the fact that the degree of lipemia could be correlated inversely with the level of basal acid secretion. Furthermore nearly half of the patients had basal achlorhydria.

4. It is possible therefore that individual variability in the ability to digest fat in a dose-response manner may determine blood levels. The findings suggest that in assessing the dietary fat hypothesis of ischemic heart disease one must take account not only of the amount and the nature of the fat eaten but also the daily feeding habits and the capacity of the individual to digest that amount of fat.

Conclusion

It would appear that the relationship of the dietary fat intake to ischemic heart disease is a complex one. There is sufficient evidence to state that when considering the relationship one has to take account not only of the amount and the nature of the fat eaten together with the manner in which it is consumed throughout the day, but also the capacity of the individual to digest that amount of fat. In view of the profound effect of physical exercise on the degree of alimentary lipemia and the, as yet, unconfirmed findings of mental stress, the assessment becomes even more complex.

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13-30 will appear in the reprints or can be obtained from the author.

BATTLE'S SIGN

Fracture of the Cranial Fossa

This sign is evident in fractures of the posterior cranial fossa. Blood accumulates beneath the deep fascia and following the course of the posterior auricular artery becomes evident as discoloration near the tip of the mastoid process.

Phenothiazine Drugs*

Patterns of Urinary Excretion

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THE INCREASED use of phenothiazine derivatives in the treatment of mental and emotional disorders has led to a great deal of research on these drugs. Much has been done in testing the clinical effectiveness of the various compounds. Another area being extensively studied is that of the metabolic variables. An example of the study of the distribution of phenothiazine compounds in mice is the work of Christensen and Wase,[1] who traced the distribution of labelled chlorpromazine in mice and found highest levels of concentrations after thirty minutes in brain, lung, heart and spleen.

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‡The term "concordance" is used here to describe a phenomenon observed by the authors. Certain patients show urine tests which are weaker than would be predicted from the ingested dosage. In this study a test was said to be nonconcordant when it represented a dosage of one-half or less than the actual dosage.
The authors express their sincere gratitude to the many clinicians, patients, secretaries and ward personnel who participated in this study.

There has also been great interest in the mode of excretion of phenothiazines with particular reference to methods of assaying the excretion of the drug in the urine and the feces. Methods of assay have practical value in determining whether a patient has taken a toxic overdose of a phenothiazine and also whether he is actually taking his prescribed medication.

Berti and Cima[2] have used spectrophotometric methods to study drug excretion. Neve[3] has worked out a chemical test on urine samples which is quite sensitive.[4] Since 1957 Forrest and Mason have published numerous papers[5,6,7,8,9] covering their work on a rapid urine test which is both specific and universal for various phenothiazines and related drugs. According to these authors, there are also currently specific tests that are both useful and rapid Chlorpromazine (Thorazine), Promazine (Sparine), Thioridazine (Mellaril), and Imipramine (Tofranil) and a universal test for all currently available phenothiazines. These tests are roughly quantitative and have the specific advantage that "virtually no false negatives have been encountered."[30]

In recent correspondence, the Forrests have indicated that further research confirms their original contention that negative urine tests do not occur in patients known to have taken their medications; however, they have also indicated that their test is not wholly reliable when patients being tested are taking less than 20 mgs. of a phenothiazine a day.[11]

Two other reports have relevance to the present research. Vol'pe[12] found that some patients receiving high dosages of phenothiazines showed weak tests (+) and some receiving low dosages showed strong tests (3+). Haydu et al.[13] found a pattern of less urinary excretion of metabolites of Tofranil in patients who improved on this drug, as compared with patients on comparable dosages who did not improve.

The research herein reported was undertaken to study the Forrest tests and to determine their usefulness and applicability for local facilities. The research was also aimed at testing the hypothesis suggested by Haydu et al. (and suggested by a pilot study done locally[14]) that drug response of patients was related to patterns of urinary excretion of phenothiazines and phenothiazine-like compounds.

Methods of Study

The research was conducted in six clinical settings. The various psychiatric facilities were characterized as inpatient or outpatient and also as chronic or acute, according to the overall nature of the clinical facility. Patients were pooled so that the final samples were designated as Inpatient-acute, Inpatient-chronic, Outpatient-acute, and Outpatient-chronic.

Samples representing each of the above categories were generated in the following way. One urine specimen from patients currently being treated in the facility with phenothiazines or phenothiazine-like compounds was tested with the appropriate Forrest test. On the day of the test all outpatients stated that they had been taking their prescribed medication regularly and had taken it as prescribed on the day of the urine test. All inpatients were presumed by the ward personnel to be taking the prescribed medication. In this way four samples were obtained. The data from these samples are presented in Table 1.

Result of Tests

Negative urine tests occurring in patients whose dosage was below the reliable range for the Forrest test (less than 20 mgs. a day) were not included in Table 1. All the samples in Table 1 had some negative urine tests.

A fifth sample of patients was organized in the following manner. Inpatients in two hospitals for acute cases were assigned to the study if they were likely to benefit clinically from either Thorazine or Tofranil. Over a period of two weeks, daily urine phenothiazine tests were obtained on these patients. For the first week,

TABLE 1

A summary of data from four patient samples considering urine test results. All cases considered were in the reliable dosage range for the test. A negative urine test indicates no detectable drug in the urine. A positive test indicates the presence of drug in the urine but without regard to quantity.

Sample Source	N	Number Negative Tests	Number Positive Tests
Inpatient Acute	42	7	35
Inpatient Chronic	32	2	30
Outpatient Acute	28	6	22
Outpatient Chronic	32	12	20

they were kept off all medications; for the second week they received either Thorazine or Tofranil according to clinical indications. Each time a patient received his medication a nurse inspected his mouth with a tongue blade and flashlight to insure that the medication had been ingested. After one month of hospitalization, the patient's response to medication was rated by his physician on a seven-point scale from "worse" to "complete remission." The above sample (the control group) consisted of 22 subjects. All subjects were taking 50 mgs. or more of the drug daily. In this sample, there were no negative Forrest urine tests.

Three additional patients were studied. These patients were receiving 6-16 mgs. of phenothiazine a day and were checked at each dosage with the tongue blade and flashlight method. Urine tests in these patients were inconsistently negative and positive on different days.

The control group of 22 patients was used to test the hypothesis that lack of concordance† of ingested dosage with urine test results was related to clinical response of the patient to the drug. Table 2 summarizes the data from this analysis.

TABLE 2

Summary of the data in the investigation of the association of nonconcordance with drug response.

Sample	N	Percentage Nonconcordance	Difference in Per Cent	P
Clinically Improved	10	60%	49%	<.002
Clinically Unimproved	9	11%		

Discussion

Several conclusions appear justified from this study. First, the data confirm the reports of the Forrests that their rapid urine phenothiazine test is reliable in daily dosages of approximately 20 mgs. of phenothiazine or greater. Patients taking more than this amount and known to be ingesting their medication in no case showed negative urine tests.

Secondly, it appears that some patients who are believed to be taking their medication (based on either their reports or observation of ward personnel) are, in fact, not taking it. The percentage of such patients varied in our study from 6 to 37 per cent. When patterns of negative urine tests were analyzed according to influence of mode of treatment (whether inpatient or outpatient) and chronicity of the patient population, the results indicated that mode of treatment was a significant variable, but that chronicity was not. The percentage of negative urine tests was significantly higher in outpatients than in inpatients. Table 3 summarizes these data.

TABLE 3

A summary of tests of significance. The data were analyzed to determine whether significant differences occurred in the proportion of negative tests when samples were compared in terms of chronicity and mode of treatment.

Comparisons	X^2	P
IP acute vs. IP chronic	——	>.1
OP acute vs. OP chronic	1.84	>.4
IP acute vs. OP acute	.2	>.9
IP chronic vs. OP chronic	9.14	<.01
All acute vs. all chronic	.001	>.9
All IP vs. all OP	6.27	<.05

IP = Inpatient
OP = Outpatient

Finally, the data suggest the possibility of a meaningful relationship between drug response and the phenomenon of nonconcordance of actual ingested dosage and urine test result. Patients who show clinical improvement from the drug excrete the drug (as measured by the Forrest test) in lesser amounts than would be predicted from the ingested dosage. This finding bears further investigation, particularly at various dosage ranges.

Summary

A total of 160 patients in various clinical psychiatric facilities were studied with reference to urinary excretion of phenothiazines or phenothiazine-like drugs. The following inferences appeared justified from the data.

1. The Forrest urine phenothiazine test is a reliable test in daily dosages of 20 mgs. or more of the drug.

2. From 6 to 37 per cent of patients receiving drugs are not taking their medication.

3. A greater percentage of outpatients than inpatients do not take their medication.

4. The Forrest test may be helpful in predicting a patient's response to certain drugs.

Recommendations

The following recommendations as to practical application of the Forrest Test are made on the basis of the authors' experience with the test.

1. Hospitals and clinics with existing laboratory facilities would benefit by establishing the Forrest test as a routine laboratory procedure.

2. Physicians can use the Forrest test in any clinical situation in which there is a question about drug ingestion for example: in cases of patients receiving phenothiazines therapeutically where there is doubt as to whether or not the patient is actually taking his medication, or in cases of drug toxicity when the toxic agent is unknown or uncertain.

3. In all research on phenothiazines which involves patients receiving medication, it would be valuable to determine whether or not the patient is actually ingesting the drug. The Forrest test could be a reliable check in this problem.

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WEAK KNEE SYNDROME

Pellegrini-Stieda

This syndrome is characterized by a relaxed knee joint and an associated quadriceps insufficiency. It may be caused by a posttraumatic intra-articular hematoma in which deposition of calcium has occurred.

Clinically there is swelling, pain, and limitation of motion of the joint with tenderness on pressure over the internal condyle of the femur. It is thought to result from trauma or trauma in combination with local arthritic changes. If a hematoma has developed, it may become calcified within a few weeks, and in that event the diagnosis is supported by roentgenographic evidence.

The prognosis is good for complete restoration of function. If joint locking occurs, there may be a torn cartilage or loose bodies within the joint requiring surgery.

Never let a difficulty stop you; it may be only sand on your track to prevent your skidding. — National Messenger

The Battered Child Syndrome

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Parental brutality to children is a social disgrace; firm polices are needed to protect children from mentally-ill and dangerous parents. Minnesota has officially tackled the problem on a state-wide basis with recent legislation.

State of Minnesota 1963

1. 626.52 Every person required to report such wounds shall, . . . report wounds or evidence of wounds appearing to arise from . . . maltreatment of any minor . . .
2. 121.031 Section 1 No letter, report, communication (of this type) . . . furnished by a physician . . . shall be made the subject matter or basis for any suit for slander or libel.

THE PURPOSE of this paper is to bring to Minnesota physicians a review of "the battered-child syndrome," and his new responsibilities under two new laws passed by the 1963 Minnesota State Legislature.

The Battered-Child Syndrome

The phrase "battered-child syndrome" was coined by Dr. C. Henry Kempe and co-workers[1] to refer to a clinical condition in young children who have received serious physical abuse. He pointed out that the syndrome should be considered in any child who exhibits evidence of possible trauma or neglect (including fractures of any bones, subdural hematoma, multiple soft tissue injuries, poor skin hygiene or malnutrition) or where there is a marked discrepancy between the clinical findings and the history as supplied by the parents.

Case Reports

Recently two such cases were seen at Minneapolis General Hospital on the Pediatric Service and will serve to illustrate several features of this syndrome.

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Case Number 1.

This one-year-old white female was brought to the Emergency Room at Minneapolis General Hospital after the neighbors called the police stating that the child needed medical care.

The parents said that the child had been in good health until approximately three months before, when she started refusing solids and forced feeding was instituted. The child cried during these forced feedings, but otherwise the parents considered her normal. They denied any willful injury to the child but did state that three months earlier the child had grabbed a hot radiator, burning both hands, and that a week and a half prior to admission she had fallen off a couch, catching her head on a nail sticking out from the couch and landing on her right arm. The mother's history varied from that given by the father, in that she reported that the baby had fallen off a dresser when the diapers were being changed.

Family history showed that the father had had a "nervous breakdown" seven years before and had recently been under treatment for ulcers. The mother worked full time, while the father, being unemployed, was mainly responsible for the care of the patient and her three-year-old sister. *(Further history showed that a female sibling had been dead on arrival at Minneapolis General Hospital in 1960 with a diagnosis of aspiration and pneumonia. The autopsy report stated that this two-year-old child weighed 6.5 kilograms and was undernourished. The brain report showed that there was "a heavy thick blood clot in the spinal canal," and a "small area of probable subarachnoid bleeding along the right occipital horn." Microscopic examination of the brain showed "a few tiny petechiae in widely separated areas of the cortical gray and white matter." In one area the petechiae were rather "packed suggesting the possibility of a bruise").*

Physical examination showed an irritable frightened child with marked swelling and limitations of motion of both arms. There were extensive ecchymoses circumferentially around both arms and distended veins which extended from the upper arms to the shoulders. There was also a one-by-one centimeter eschar in the left occipital area and scarred contractures of the second, third and fourth fingers of the right hand.

X-rays were taken on admission and showed a recent supracondylar fracture of the right humerus, a recent fracture of the right radius (See Fig. 1), an old healed fracture of the shaft of the right humerus, periosteal reaction along the shaft of the distal left humerus, and deformity indicating an old fracture of the right clavicle. Follow up x-rays taken two weeks later revealed marked periosteal reaction around the distal humeri bilaterally (See Fig. 2).

This case was referred to the Hennepin County Welfare Board, and their evaluation showed that the family had moved many times in the past few years and that the parents had been previously convicted of child neglect.



Fig. 1 — Case one. This x-ray of the right upper extremity shows the recent fracture of the right radius and supracondylar area with widening of the elbow joint; also shown is the periosteal elevation of the humerus.



Fig. 2 — Case one. X-ray of the left humerus shows the marked periosteal reaction along the humerus taken two weeks after initial x-rays. Deformity of the proximal humerus is seen indicating an old fracture.

Psychological testing of the parents showed that the father was a very disturbed person and probably a schizophrenic. The mother also showed abnormal testing with a schizoid personality marked by suspicion, hostility, and social withdrawal.

On the basis of these findings, the welfare board took the case to juvenile court where it was felt that neglect did exist and the child was removed from the home for a temporary period of six months, during which time further evaluation was to be carried out.



Fig. 3 — Case two. X-ray of the left humerus showing deformity of the midshaft and of the supracondylar region indicating old healed fractures.

Case Number 2

This two-year-old white male was brought to the Emergency Room of Minneapolis General Hospital because he had two loose yellow stools during the day, and the mother was concerned since the patient's twin brother had been dead on arrival at the hospital that same morning and had had diarrhea and vomiting one day prior to death.

On examination the child appeared to be developmentally retarded, as he could not sit well alone and had poor general muscle tone. He did not move his extremities spontaneously; there was limitation of motion of both elbows and hips. There were numerous fresh bruises over his chest anteriorly and posteriorly.

Additional history showed that the child weighed 2350 grams at birth, and had had an exchange transfusion for hyperbilirubinemia at four days of life. He had developed slowly and did not roll over until thirteen months of age. The parents had not had any medical evaluation of the child's retardation and felt that the child was "normal." The mother denied any trauma except that the child had fallen from a high chair several months previously, but otherwise had not been irritable and moved all of his extremities well.

Because of the history, x-rays were taken which showed at least eleven old fractures located in all four extremities. The most severe changes were noted in both humeral shafts with bilateral supracondylar fractures (See Fig. 3 and 4) and marked distortion of the left femur with several old fractures (See Fig. 5).

Since this child had evidence of old trauma, x-rays were obtained of his twin brother who had been autopsied that day, and these revealed a recent midshaft fracture of the right femur (See Fig. 6). There were also at least five old fractures of the upper extremities.

In view of the multiple fractures to these twins, x-rays were taken on the three-year-old and eleven-month-old sisters. These revealed no definite fractures.

The case was referred to the Hennepin County Welfare Board and then to the county attorney's office. Once again the juvenile court felt that there was evidence of obvious neglect and the children were removed temporarily from the home for a period of six months, the case to be reviewed at that time.

Discussion of Cases

These two cases are rather obvious examples of the syndrome of the "battered child." They point out the need for the physician to be alerted to such conditions and appropriate steps, including x-rays, be taken to confirm the diagnosis. The main factor of suspicion in these cases was the degree of the discrepancy between the



Fig. 4 — Case two: X-ray of the right humerus shows deformity of the proximal shaft and deformity of the supracondylar area.

parents' history and the physician's findings on examination of the child. It is of interest that in each of these cases there had been another sibling dead on arrival at the hospital with the apparent cause of death being aspiration. In this regard, Coe's study on sudden death in infancy[2] showed that aspiration was a rare cause of death in 271 such cases.

These cases also point out the importance of taking roentgenograms of the entire skeleton in any child who dies suddenly without obvious cause. The value of taking follow-up roentgenograms of areas of suspected skeletal trauma to show periosteal reaction, thus making the diagnosis more clear, is illustrated in our first case. (See Fig. 2).

Studies of the Physically Abused Child

The incidence of this syndrome is higher than one might expect. Kempe's survey[1] of 71 hospitals revealed 302 such instances with 33 dying and 85 suffering permanent brain damage within a one-year period. They also surveyed 77 district attorneys who encountered 447 cases in a year's time. A study by the Massachusetts SPCC[3] showed that in 1960 there were well over 100 cases, involving some 200 children, referred for child abuse. A fact of significance in this study was that hospitals and doctors referred only 9% of the cases, though they had been involved in over 30% of them. Another index of incidence was made by De Francis,[4] of a survey made from January 1, 1962 to December 31, 1962 of child abuse cases reported in the newspapers of the country. This study revealed 662 cases of which 178 died as a result of their injuries. Of these 81% were under four years of age. The parents were responsible for 73% of the injuries inflicted and 76% of the fatalities. From these reports the types of abuse inflicted on children were as varied as the human imagination, and the injuries as diverse as a textbook of pathology. Of primary importance to the physician in considering this diagnosis is the multiplicity of fractures, subural hematomas, burns, internal injuries, and failure to thrive.

Sociological Aspects

The various sociological studies of this condition show that these children are not peculiar



Fig. 5 — Case two. X-ray of the lower extremities shows the marked distortion of the left femur and old fractures of the left tibia.

to any socioeconomic group in the community and are found from the poorest slum areas to the country club districts and from culturally deprived families to families in business and professional ranks. Ninety percent of the families in the Massachusetts study had serious social problems with marital discord being the most prevalent (40%). Alcoholism is another factor cited by many authors.

Psychological Aspects

The psychological factors are poorly understood but are important for proper understanding and management of these children and their families. Correlations of the ages of the parents involved (67% between 20–30 years) and their family disorders indicate emotional immaturity as the greatest single cause for destructive parental behaviour.[4] When fathers were responsible for the abuse, it usually followed an immediate emotional explosion to a particularly irritating occurrence or resulted from an attempt at discipline. Mothers, on the other hand, seem to be influenced by more disturbed and irrational thinking, which usually stemmed from depression and feelings of despair.

The Physician's Responsibility

As mentioned in the Massachusetts Society for Prevention of Cruelty to Children report only 9% of the cases were referred by hospitals and physicians, although 30% were seen by physicians. Dodge[5] feels that even though the physician is trained as a detective in the diagnosis of disease, he usually fails to consider physical abuse in the differential diagnosis. There has also been a reluctance to report suspected instances because of fear of legal entanglement and even legal action against the physician by irate parents.

New Minnesota Laws

Following public recognition of the problem of the physically abused child the 1963 Minnesota State Legislature enacted two laws. The first is for the mandatory reporting of cases of suspected child brutality; the second frees the physician from the legal barrier which might arise out of the confidentiality of the doctor-patient relationship. These bills are as follows:

1. "626.52 Every person required to report such wounds shall, in the same manner as required for the reporting of gunshot or similar wounds, report wounds or evidence of wounds appearing to arise from the beating or similar maltreatment of any minor whose wounds the person is called upon to treat, dress or bandage.
This act takes effect on June 30, 1963."
2. "121.301 Section 1. No letter, report, communication, or any other matter, either oral or written, furnished by a physician or other professional man to any agency of the State of Minnesota for use in connection with an agreement of the type anthorized by Minnesota Statutes, section 121.30, shall be made the subject matter or basis for any suit for slander or libel."

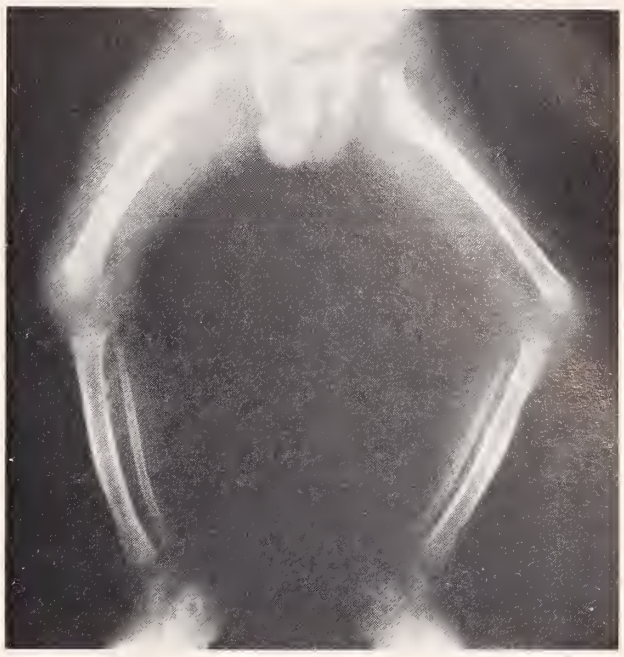


Fig. 6 — Postmortem x-ray of the twin brother (case two) showing recent midshaft fracture of right femur (note also the soft tissue swelling of the right thigh).

It should be pointed out, and emphasized, that the reporting of cases is made to the police and is not required to be made to a child protection agency. In the past some communities have used police investigations or the probation officer to investigate physically abused children. These methods required prosecution as the initial method of safeguarding the child from the parent or parents. DeFrancis points out that, when the attempt to seek medical attention for

the child exposes the parent to possible criminal prosecution, there is a real danger that some children may not receive medical attention soon enough, or not at all.[6] Also there is the difficulty of obtaining evidence for prosecution since the abuse usually takes place in the privacy of the home. The result may be that the child, or children, remain in a home where physical abuse will continue and the personality disorders of the parents go untreated.

In Minnesota, when physically or emotionally abused children are reported to the police, the officers have usually referred the family to the County Welfare Board or to the child protective services program if such exists under the County Welfare Board. The welfare board has then provided socialwork services to the family, helping them to face the realities of their plight and assisting them in solving the problems which lead to neglect and abuse of children.

The county welfare boards or child protective services have a responsibility to effect a change of parental behavior so that the hazard to children is removed; if this is not possible the agency files a petition in Juvenile Court seeking removal of the child, or children, from parental custody. The removal is usually concerned with social planning in the best interests of the child, or children, and is not concerned with punishment of the parents by denying the right of custody. In circumstances where the act of physical abuse to a child constitutes a felony, the agency consults with the County Prosecutor who determines whether criminal action will be taken against the parents.

The physician should be aware if his medical and legal responsibilities and his legal protection under the new statutes. He is encouraged to report to the police all cases of physical abuse or of suspected abuse of minors. It is advisable that such reports first be made by telephone and then in writing. In order to assure the greatest safety to the child, the family, and the community, it is strongly suggested that the County Welfare Board also be informed.

Summary

A review of the literature and a report of two cases of the "battered-child syndrome" has been presented to assist the physician in his management of these cases under two new Minnesota State laws.

Acknowledgments

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GALEN'S MATERIA MEDICA*

On hasty and superficial judgment Galen's materia medica sounds absurdly unscientific. However, in view of his rejection of much of the pure magic current in his day (incantations, amulets, etc.) and his reliance on specific natural substances, no matter how bizarre, with special properties to combat particular diseases, he can well qualify as one of the early pioneers in scientific medicine.

The Maggot Treatment of Earache?

Galen was not wholly confident as to the efficacy of treating earache with multipedes which roll themselves up into a ball and which, cooked in oil, are employed especially by rural doctors.

*Thorndike, Lynn: A History of Magic and Experimental Science, Volume I:142

Injuries to the Head

Their Sequelae and Disabilities

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HEAD INJURIES steadily continue to increase in number, particularly as the population grows and the number and speed of automobiles multiply. General physicians and surgeons must bear the responsibility of treating the majority of these injuries, for they often occur where neuro-surgeons are not always at hand. Early management is important in the eventual outcome, and the initial evaluation is often paramount in determining the relationship of injury to sequelae. All who treat trauma become involved in litigations, and the treating doctor is sometimes essential in medicolegal proceedings.

Cerebral concussion is a term quite universally accepted as indicating a transient loss of consciousness, perhaps arbitrarily not exceeding 30 minutes, with no organic cerebral pathological changes or neurological aftermaths. More severe injury, with more prolonged unconsciousness or evidence of organic brain damage, implies cerebral contusion, laceration, or hemorrhage.

Loss of consciousness is accompanied by amnesia for the accident itself and usually by retrograde amnesia as well as post-traumatic amnesia. The extent of posttraumatic amnesia is the most reliable index of the severity of injury (1, 16). Loss of consciousness or the occurrence of concussion is doubtful in the absence of any amnesia.

Complications superimposed on these head ininjuries must be watched for and treated appropriately. These include lacerations of the scalp; fractures of the skull, particularly open or depressed; extradural, subdural and intracerebral hematomas; cerebrospinal fluid otorrhea or rhinorrhea; and osteomyelitis of the skull, meningitis, encephalitis and cerebral abscess.

Following head injuries, there is a relatively high incidence of sequelae, which may be either organic or functional, but are most commonly a mixture of the two. In one series, 5 per cent of sequelae were traumatic epilepsy, 30 per cent other organic defects, and 65 per cent emotional.

Treatment

Initial treatment can minimize these sequelae. The mechanism of injury and the forces involved must be ascertained, usually from witnesses. If the force is significant, even apparently trivial head injuries must be treated as serious. A rapid, thorough examination is essential for baseline purposes. This information is invaluable in evaluating subsequent developments.

An adequate airway, or a tracheotomy if necessary, and control of shock are necessary to maintain cerebral oxygenation. Significant shock rarely results from uncomplicated head injuries and

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is usually due to associated trauma.[8] Increased intracranial pressure must be controlled to prevent cerebral compression and maintain cerebral circulation. Dehydration with intravenous 50 per cent glucose or urea,[6, 13] diuretics, repeated lumbar punctures,[13] and surgery may all be useful when indicated. Bed rest and close hourly observation are necessary to diagnose complications promptly.[3, 13] Every additional insult to a serious head injury worsens the prognosis. With few exceptions, surgery, even for scalp lacerations, should be delayed until shock is controlled and the general condition has stabilized.[5, 13] In spite of opinions to the contrary,[9, 10] trephination of the skull is traumatic and must not be used indiscriminately,[8, 13] but it may be lifesaving when indicated. When needed the neuro-surgeon should come to the patient to avoid transporting the serious head injury. All head injuries should be X-rayed, but this should be delayed until absolutely safe.[3, 5, 6, 13, 14] It is the injury to the underlying brain and not to the skull which is important.

Sequelae

Subsequent studies for evaluation of complications, persistent symptoms, and disability must include a complete physical and thorough neurological examination, and X-rays of the skull. Lumbar puncture, electroencephalogram, and psychological testing are of value. Air studies of the brain, by encephalogram or ventriculogram, and cerebral arteriograms may be indicated.

Organic damage must be thoroughly searched for and evaluated. Psychic and mental symptoms as well as paralysis, cranial nerve deficits, sensory changes, aphasia, cerebellar manifectations, or epilepsy, may result. Cerebral contusion, laceration or hemorrhage, with resulting gliosis; cerebral atrophy and encephalomalacia secondary to increased intracranial pressure within the closed space of the bony vault encasing the brain producing cerebral compression, anemia, and anoxia; internal hydrocephalus with cerebral atrophy and ventricular enlargement from interference with spinal fluid formation, circulation, and absorption, perhaps secondary to adhesions as from subarachnoid hemorrhage; and chronic subdural hematomata or other intracranial collections of blood or fluid, with localized as well as generalized increased pressure, must all be considered.

Discovery of actual organic changes usually permits ready explanation of symptoms and signs. The remarkable powers of recovery from cerebral dysfunction caused by permanent damage to the brain, meninges or skull must be remembered; this may continue for months or years.[14] Nor does the presence of neurological defects prove relationship to injury; their absence prior to injury must be determined, which is not always easy.[1] In the presence of associated conditions unrelated to injury such as epidemic meningitis, cerebral tumors and tertiary syphilis, one must eveluate the severity of the injury and its expected effect on a normal individual.

Posttraumatic epilepsy

Posttraumatic epilepsy may result from scarring and adhesions of the brain and meninges or from the pressure of a depressed fracture. Convulsions occurring shortly after injury are usually caused by the acute traumatic changes and do not tend to recur once they have ceased. Of convulsions occurring even within the first year, 50 percent have no further attacks.[17] Late posttraumatic epilepsy almost always develops within two years and is ten times more common in open intracranial wounds. Even if this occurs, more than a third of such cases recover with no further attacks, particularly if the attacks are infrequent and if they cease relatively soon. Persistent epilepsy is often well controlled by anticonvulsant drugs with little true disability, but nonetheless the social and economic handicaps are severe.

Functional Disorders

Functional disorders simulating epilepsy must be ruled out. Electroencephalograms are usually diagnostic. Idiopathic epilepsy must be considered, for one's first seizure may produce a head injury to which all later convulsions may be attributed.[4] Pretraumatic epilepsy, even though under treatment for years, may be denied in seeking gain.[1]

Organic Nerve Deficits

Organic cranial nerve deficts which follow head injury are usually quite readily evaluated and easily differentiated from simulated conditions. Hearing deficits resulting from eight nerve or associated injuries returned to normal in a few

weeks to six months in 25 per cent of the cases considered, and improvement occurred in 54 per cent. Deficits tended to stabilize after 6 to 8 months.[7] When initial hearing losses progressed, it was usually in older individuals with senile osteoporosis. Other cranial nerve injuries, usually involving the I, II, III, IV, VI, and VII nerves, also tended to recover, except for the olfactory and optic nerves.[14]

The majority of sequelae of head injuries involve psychic and mental aspects. Cerebral function is complex and knowledge concerning it is limited. The damage to this complicated mechanism from trauma is often difficult to assess. Even those psychic sequelae which seem to be the actual result of organic injury are often more a personality change in an emotionally weak individual subjected to stress.

Organic Personality Disorders

Organic personality disorders may occur from injuries to specific centers with characteristic pictures. Mental deterioration and posttraumatic dementia are raer,[2, 13] but sometimes occur, particularly in the elderly, the arteriosclerotic, and the alcoholic.[15] These usually follow severe injuries, but may gradually develop after a relatively mild head injury. Cerebral atrophy and ventricular enlargement may be demonstrated by X-ray air studies, and electroencephalograms may show changes. Functional psychoses, as schizophrenia, which become evident following trauma, would in all probability have developed in time without injury and are thus unrelated to trauma.[15]

Postconcussion Syndrome

More difficult to evaluate are the borderline behavioral and neurotic reactions. The so-called postconcussion or posttraumatic syndrome has been noted to some degree in 55 per cent of head injuries.[15] It is such a consistent syndrome that many feel it must be due to organic brain damage.

Symptoms

The characteristic symptoms are headache, postural dizziness, nervousness, anxiety, tinnitus, inability to concentrate, fatigability, lack of initiative, irritability, insomnia, and intolerance to loud noises, heat, bright light, and alcohol. This is thought to be due to a subtle and potentially reversible, structural cerebral change. Others feel just as strongly that this is purely functional, since these symptoms are also characteristic of other posttraumatic neuroses as well as neuroses not associated with trauma.

Organic and Functional

It is probable that in most cases of postconcussion syndrome, there is a mixture of organic and functional causes. Evaluation of which cause is more important in an individual case is difficult but essential for fair settlement. An injury which was relatively minor, with no neurological or electroencephalographic changes and no demonstrable defect in memory or intellectual efficiency, does not suggest significant organic change, particularly if the history reveals a neurotic predisposition as well as the presence of psychological stresses or the desire for gain. Exaggerated and inconsistent symptoms, from which the patient may quite readily be distracted, further indicate functional overlay. Electroencephalographic changes are present normally in 10 per cent and do not neccessarily indicate organic pathology unless a normal pretraumatic electroencephalogram is at hand or serial electroencephalograms show progressive changes in the immediate posttraumatic tracing.[1, 8] Correct evaluation of these factors is important for treatment, as well as for prognostic and medicolegal purposes, because undue emphasis on psychogenic factors in the presence of organic lesions decreases the patient's confidence and response to treatment.

The severity of the injury has little to do with the development of postconcussion syndrome, which is more common in the less seriously injured with a more vivid memory of the injury. Pretraumatic emotional weakness, often revealed by personality tests,[17] and posttraumatic psychosocial stresses are far more important etiological factors. The more the symptoms result from these factors, the less the accident can be considered responsible.

Emotional Decompensation

Emotional decompensation can readily result from trauma in those barely in emotional equilibrium before injury. The head is considered to be one of the most vital body parts, so that injury to it causes great anxiety.[4, 12] There is immediate fear of decreased mentality or even of insanity. Resentment against those responsible

readily develops. Desire for gain, either monetary or emotional, even though subconscious, is an important factor. A large proportion of patients develop their postconcussion syndrome after leaving the hospital, when their social, domestic, economic, and psychological stresses increase. Every effort must be made to minimize these stresses. Reassurance and optimism, and the proper amount of sympathy and support, are essential.[13,15] Early return to work is desirable in functional cases. Simple measures, such as minor analgesics to control headaches and slower movements to prevent postural symptoms of vascular origin may then be all that are required to obtain complete recovery. Psychiatric consultation early in the course of such posttraumatic symptoms has been recommended, because psychotherapy in the acute stage is much more likely to be successful.[12]

Prognosis

Postconcussion syndrome may improve in two weeks and usually subsides within six months, but may not resolve for two years, so that no definite prognosis can be given until then.[15] Thoroughly established posttraumatic symptoms may be extremely resistant to treatment.[17] If a postconcussion syndrome lasts more than nine months, neurotic prolongation of symptoms must be suspected.[2] The prolonged emphasis on persistent disability in the course of litigation may well precipitate a permanent neurosis, unaffected by settlement. Treatment is usually completely unseccessful when litigation is pending, so that early settlement is advisable. Complete recovery frequently occurs a short time after satisfactory settlement, suggesting predominance of functional factors.

Secondary Psychic States

Secondary posttraumatic psychic states are latent pretraumatically and are associated with or precipitated by the injury, not caused by it.

Traumatic Hysteria

Traumatic hysteria manifested by functional motor or sensory disturbances, is about as common as the postconcussion syndrome. True *malingering*, willful, fraudulent exaggeration of illness, is rare, but borderline cases of almost conscious exaggeration of symptoms are numerous.

Compensation Neurosis

Compensation neurosis is based on a desire for gain which is usually unconscious. It is considered by many to be borderline malingering, with exaggeration and prolongation of symptoms which resolve when a case is settled. It may become so ingrained that this fails to occur. Lump sum settlements are preferable, since monthly payments prolong the condition. A true *traumatic neurosis* is less common. It usually develops immediately after an injury of lesser severity which is remembered, the actual terrifying event and not the head injury itself producing emotional decompensation.[2] Anxiety symptoms which result are usually acute with early recovery. When symptoms develop late, they are more the result of psycho-social stresses in a weaker pretraumatic personality, rather than related to the injury. These cases are resistant to treatment and are not affected by settlement.

Constitutional Inadequacy

Emotional sequelae of injuries are becoming more widely recognized as valid medicolegal problems.[2] Compensation of true traumatic disability is well deserved, but constitutional inadequacy should not be compensable.[1] The severity of the injury, the pretraumatic state of the individual, the motivation to get well, and factors of litigation must all be considered. Before compensation is justified, it must be possible to prove some causal relationship between a neurosis or psychosis and a head injury. A neurosis is related to injury only when a definite change occurs following trauma, not when the injury is merely an episode in the course of the neurosis. Sequelae that do not develop until two or three months after injury are probably not related to trauma. A head injury often permits recognition of previously latent psychic dysfunctions, but this does not imply etiology. Aggravation of this condition by the injury may occur, and the degree of aggravation may be extremely difficult to assess. I must be considered in the light of the pretraumatic personality, and only that portion of the disability which was caused or aggravated by the injury should be compensable.

The final evaluation of permanent disability following head injury depends upon estimating how well the patient can function compared to his pretraumatic functional capacity. The end re-

sult and not the severity of the injury is the determining factor.[11] Functional disability which improves after settlement is not permanent. Temporary disability must be differentiated from permanent disability, and organic from functional factors.

Summary and Conclusions

1. Organic and functional sequelae of head injuries have been discussed.

2. Factors involved in evaluation of permanent disability due to head injuries have been mentioned. It is our duty as doctors to determine impartially and competently the nature and extent of injury, its effects, and the prognosis.

3. Some opinions expressed, based on medical logic, may be at variance with current legal concepts. Such misunderstandings are the basis of much of the present trend in litigation. Correction of these by co-operative effort of all parties concerned would be beneficial to all.

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MASTER PHYSICIAN

THE PATIENT waited, feverish and tense,
In hope the doctor's words would help allay
His hidden fears and end the long suspense
Of hours plagued with worry through the day.
"You need to rest," the doctor said, "and slow
Your pace a bit. These pills should help, and when
A month has passed, come back, and let me know
If you are feeling more at ease again."
With strong and buoyant step the patient came
At the appointed time, and with a cry,
Addressed the doctor joyfully by name.
"We cured that ailment, you, the pills and I."
The doctor shook his head. "There you are wrong;
God cures and heals; we only help along."

The War Cry — Belle Schacht

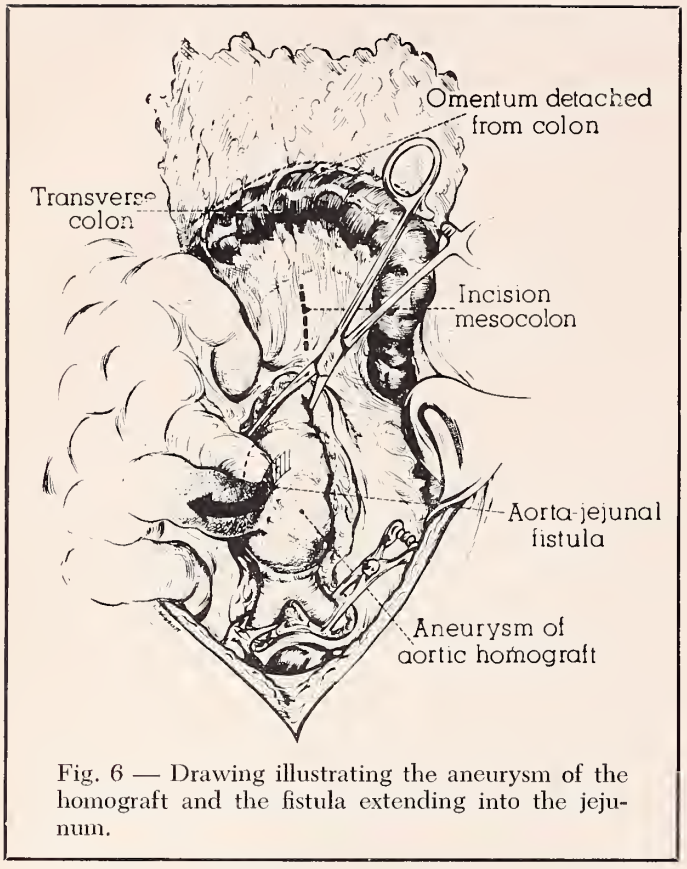


Fig. 6 — Drawing illustrating the aneurysm of the homograft and the fistula extending into the jejunum.

Aortic Graft

This is a single case report of a fistulous formation occurring between an aortic homograft and the jejunum. Some comments will be made concerning its etiology, prevention, and management.

Etiology

The over-all incidence of complications following aortic grafts is reported[1] as being higher (7.5%) following aneurysmectomy than in aortic occlusive disease (2.9%). This fact is probably related to the condition of the aortic wall that is utilized in the anastomosis. Almost all reported cases of aorto-intestinal fistulae have followed abdominal aortic aneurysmectomy, frequently as a late complication after repair especially if the aneurysm had ruptured. Occasionally a spontaneous rupture of an aneurysm into the third portion of the duodenum occurs; however, these fistulae usually follow reconstructive surgery.

The time interval between aneurysmectomy and the gastrointestinal hemorrhage is commonly measured in months. The occurrence rate of these fistulae has been reported as between 0.6% to 4.0%. Such an occurrence is a catastrophe and unless treated immediately by excision and replacement by a new graft, will be followed by exsanguination. The specific causes in an individual case vary with the local circumstances at the time of the original resection of the aneurysm. Homografts subject the recipient to aneurysm formation at the origin of the intercostal arteries and in areas of degeneration of the homograft wall. Infection is undoubtedly a major cause of disruption of the suture line and false aneurysm formation, easily followed by rupture into the intestine. An inadequate suture line is a further cause. Factors which favor this are (a) undue suture line tension, (b) poor integrity of the vessel wall in the area chosen for the anastomosis, and (c) errors in technique. A final cause is adherence of the duodenum or jejunum directly

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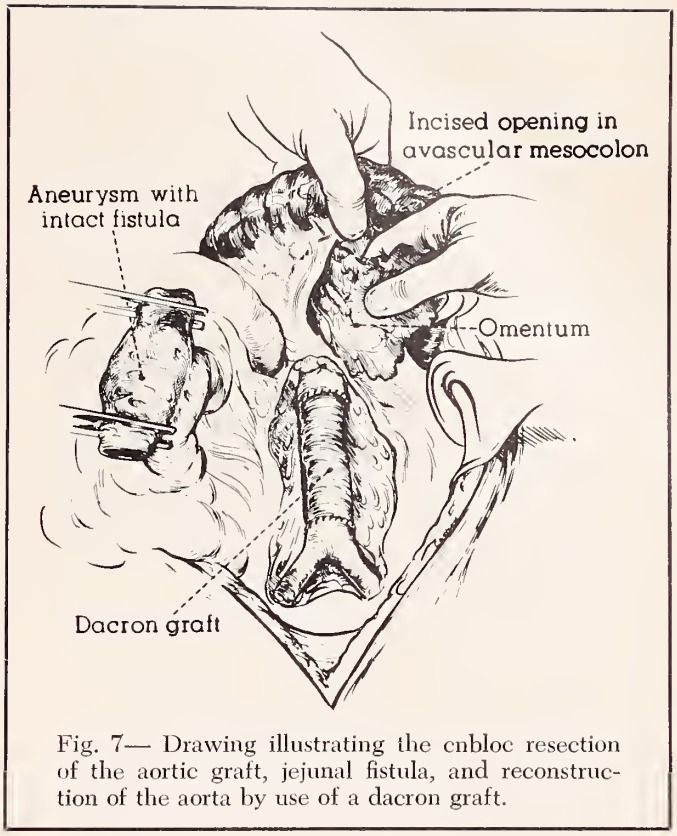


Fig. 7— Drawing illustrating the cnbloc resection of the aortic graft, jejunal fistula, and reconstruction of the aorta by use of a dacron graft.

Intestinal Fistula

to the graft. If the intestine is allowed to lie directly upon the graft it will become firmly adherent, and fistula and hemorrhage into the intestine may ensue. During the time of development of the fistula the patient is usually asymptomatic and completely unaware of impending hemorrhage and when the fistula finally opens, the hemorrhage is usually massive.

Prevention

Surgical management of the aorto-intestinal fistula is extremely disappointing and every effort should be made to prevent this complication. The case here reported and experience from recent literature[2,3,4,5] point to several available safeguards. During resection of an abdominal aortic aneurysm it is necessary to mobilize the proximal aorta sufficiently to reach a segment of aorta wall as close to normal as possible for the anastomosis. This area usually turns out to be the two or three centimers just distal to the renal arteries. The problem of aneurysm formation in aortic homografts makes them unsuitable as a prosthesis today.

Technique should include a meticulous and secure proximal suture line. The proximal aorta should not be mobilized from the perispinous tissues. The posterior row of sutures should be taken deeply to include these tissues and thereby add strength to the suture line. Infection in the presence of a foreign body such as a dacron graft leads to disaster. Avoidance of injury to the gastrointestinal tract and prevention of contamination of the operative site are of prime consideration. A final factor in the prevention of aorto-intestinal fistulae is the interposition of living tissue between the aortic graft and the intestine. This can be accomplished by leaving the posterior wall of the aneurysm *in situ*. The back bleeding from the lumbar arteries is con-

trolled by suture ligatures from within the lumen. An endarterectomy of the aneurysm is performed,[1] and a portion of the media and adventitia preserved. After the graft is in place the remaining aneurysm wall is closed over the graft. Following this the posterior peritoneum is replaced and two layers of living tissue separate graft from duodenum and jejunum.

Management

The only effective management for the aorto-intestinal fistula is immediate en bloc resection of the aortic graft and attached small bowel, followed by aortic and intestinal reconstruction. The en bloc resection is a *sine qua non* for the prevention of contamination of the retroperitoneal tissues. After the graft is replaced and the retroperitoneal area closed, the necessary bowel resection can be safely performed. Of course, if the duodenum is involved, en bloc resection is impossible. An important maneuver in the prevention of future fistulae is the positioning of the greater omentum between the prosthetic graft and the posterior peritoneal closure. This will place a two-to-four centimeter layer of fat between the graft and intestine.

Case Report

Mr. C. B. is a 78-year-old white male, first seen at the Presbyterian-St. Luke's Hospital of Chicago in 1954. At that time he had upper abdominal complaints and a palpable abdominal aortic aneurysm. An aneurysmectomy was performed and aortic continuity restored with a homologous aortic graft (Figures 1 and 2). After an uncomplicated postoperative course he was discharged from the hospital and remained asymptomatic for the next six and one-half years.

He returned to the hospital later with acute massive intestinal hemorrhage manifested by major blood loss per rectum and the clinical picture of incipient shock. His hemoglobin was 7.1 grams upon admission. After receiving 4000 ml. of whole blood his hemogram and clinical appearance failed to improve. The pulsation of his abdominal aortic homograft was questionably widened upon palpation. He was taken to surgery with the diagnosis of an aortic graft small bowel fistula. Several loops of small bowel were found to be adherent to the aortic homograft and blood was visible in the small bowel distal to the mass of bowel and aortic homograft. The homograft with attached and undisturbed bowel was resected en bloc



Figure 1. Photograph of abdominal aortic aneurysm at the time of the original resection, 1954.

and a dacron graft placed from 1 cm. inferior to the renal arteries to the aortic bifurcation (Figures 3, 4, and 5). The homograft and the adherent bowel were lifted out of the abdomen and packed away separate from the operative field. After completion of the aortic reconstruction, the duodenum was dissected away from the ligament of Treitz and lifted laterally. The greater omentum which had been mobilized from the colon was then pulled through an opening in the avascular space of the transverse mesocolon and sutured about the dacron graft (Figures 6, 7, and 8). The posterior peritoneum was then sutured over the omentum. With the graft thus carefully excluded by the omental apron, the reconstructed posterior peritoneum, and a final covering of laparotomy pads, the bowel resection was performed. The resected bowel with the attached aortic graft and aneurysm was then opened and a direct fistula demonstrated between aortic homograft and intestinal lumen (Figures 3, 4, and 5). It is now twenty-three months since surgery and the patient is doing well. He has a good appetite, has gained ten pounds, and is without abdominal complaints. His ultimate prognosis can be considered good at this time.

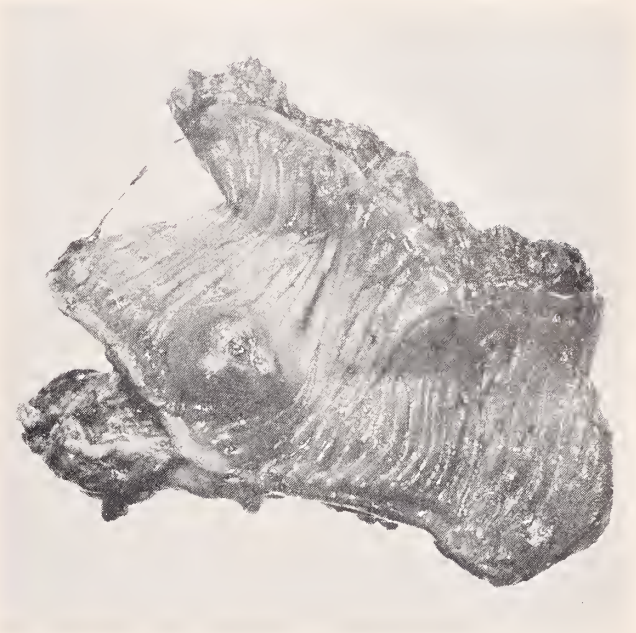


Fig. 3 — Photograph of resected fistula which included the homograft, jejunum, and fistula. This is a view taken from the lumen of the jejunum and reveals the small aneurysm protruding into the bowel lumen.

Discussion

The surgeon must recognize the fact that, because of the nature of the vascular disease, complications following aortic reconstruction are prone to occur. These complications, however,

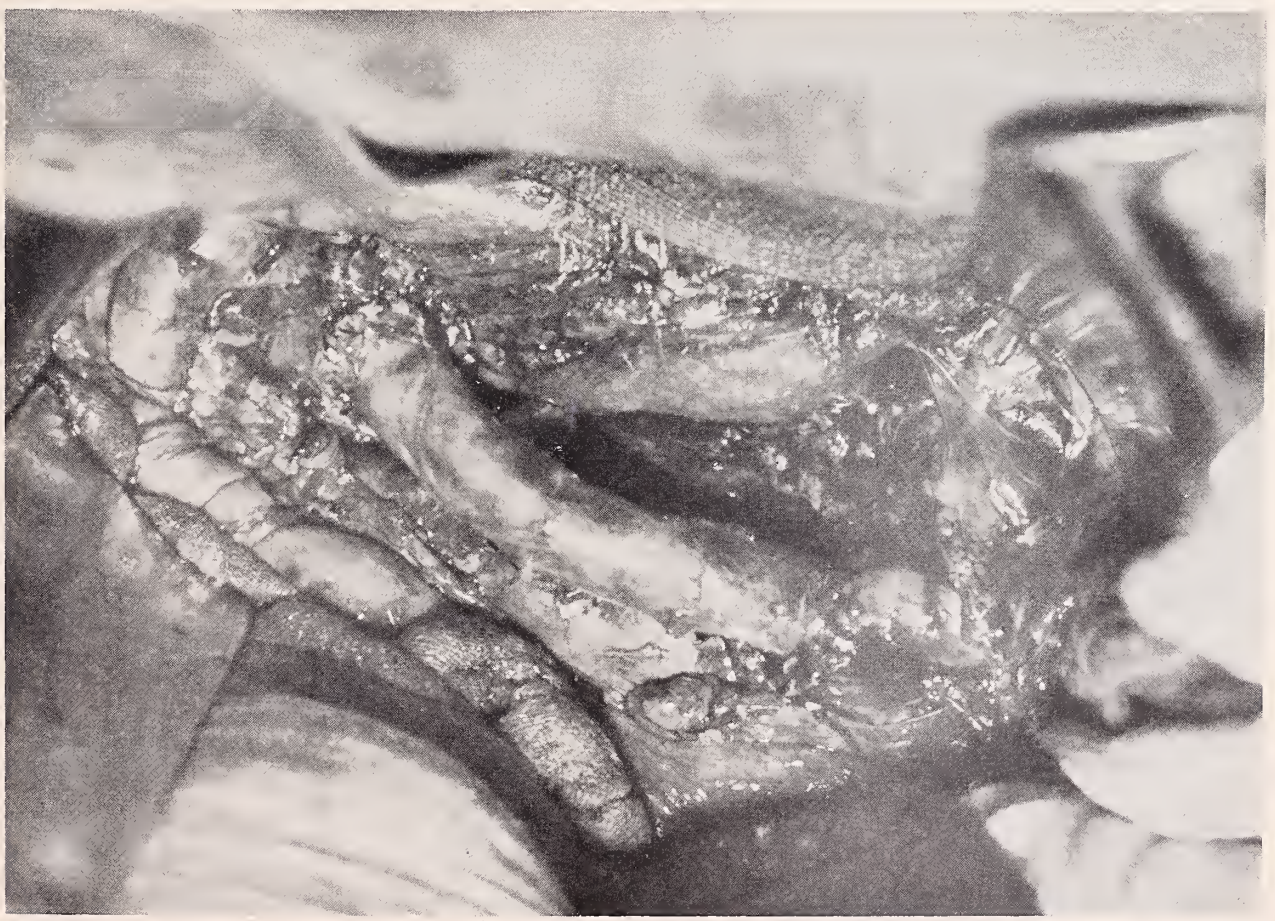


Figure 2. Photograph of homograft in place following resection of the abdominal aortic aneurysm.

deserve our fullest attention because, if unattended, they will produce a fatality; and even with active treatment the outlook is poor. Close attention to details of technique can decrease the incidence of complications. The three prime points of consideration in prevention are (1) avoidance of bacterial contamination of the operative site, (2) a secure proximal suture line, and (3) the separation of the graft and intestine by viable tissue. A fistula must be considered immediately when we see a patient with massive gastrointestinal hemorrhage who has previously had an aortic graft. An aortogram may not be conclusive; a routine exploratory celiotomy may not be sufficient. At an emergency laparotomy the intestine must be dissected away from the graft until either the fistula is located or the diagnosis disproved and another cause established for the bleeding episode.



Fig. 4 — Photograph showing the lumen of the aortic homograft and orifice of the fistula.



Fig. 5 — Photograph with the fistula opened and a probe extending from aortic homograph lumen, through the aneurysm, and extending into the jejunal lumen.

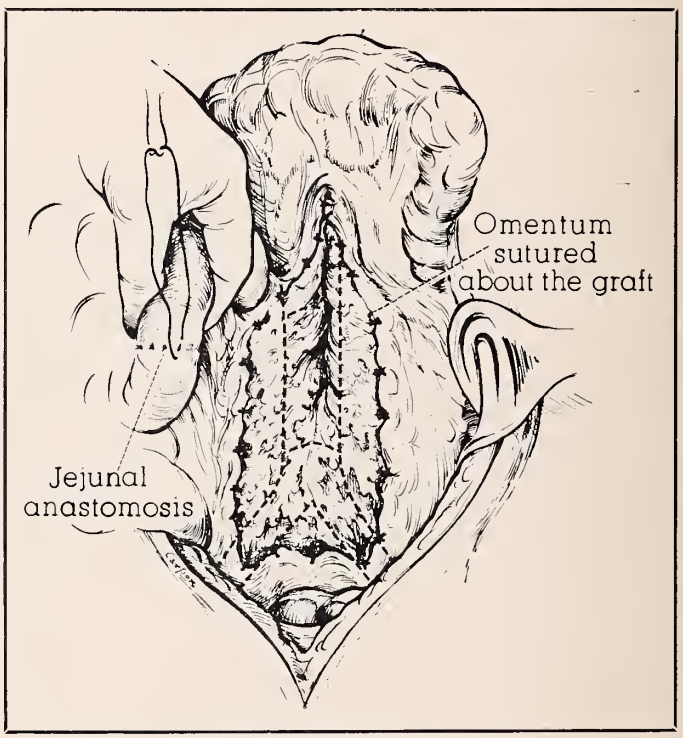


Fig. 8 — Drawing illustrating the use of the omental apron for purpose of covering the dacron graft.

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WHAT'S YOUR DIAGNOSIS?

A 50-year-old white female came to the doctor's office because of a sudden hearing loss in the left ear. Her health in general had been good. She stated that in the past she had had some sinus trouble but that she had never had ear trouble. She had had three normal pregnancies. She stated that she smoked one to two packages of cigarettes per day and had done this for many years.

Physical examination of the ears, nose, and throat revealed no evidence of acute or chronic illness or any evidence of neoplastic disease. There was a moderately severe sensori-neural hearing loss in the left ear. The patient was started on treatment with vaso-dilators and told to report in two weeks for re-evaluation of the hearing. In a few days, the patient became ill with what her family described as "sinus trouble." Arrangements were made for admission to the hospital, and on examining the patient in the hospital it was found that she had a complete paralysis of both facial nerves and total loss of hearing in the left ear. X-rays of the skull and mastoids revealed no evidence of tumor. Chest x-ray showed a large infiltrate in the right upper lung. Bronchoscopic examinations showed no intrabronchial tumor, but bronchogram showed obstruction of the right upper lobe bronchus. Washings from the right upper lobe revealed no tumor cells. Cultures were negative. In a few days the patient began to have weakness of the right leg. Spinal fluid examination revealed amber fluid which coagulated as soon as it was withdrawn. Protein level was estimated at 960 mg.% Examination of the optic fundi showed bilateral papilledema but the patient still had good visual acuity.

The patient then began to lose hearing rapidly in the right ear and the vision began to fail. She became totally deaf and totally blind but remained fairly well oriented until near the end.

What's Your Diagnosis? Turn to page 994

Kakistocracy

My dad would have "laughed his head off" had someone proposed to secure his old age by forcibly taking funds from him, spending the proceeds on moonshots, and putting an IOU in the cash box. — Leonard E. Read

Democracy

You can best help me in my project by excelling me in your own. This is the type of individualism that can insure individual liberty. — Leonard E. Read

Saint Luke

Luke, who lived in the first century, was one of "the seventy" apostles and was distinctive for being the only Gentile among them, a fact which undoubtedly saved him from suspicion and harassment, since his non-Semitic countenance dissociated him from the other Christians of his era who were undergoing persecution for their advocacy of the new religious faith.

He was a Greek who probably heard Paul and Barnabas preach at Antioch and was attracted to them as disciple and helper, later to become permanently and devotedly attached to Paul as his medical adviser on extended pilgrimages and still later as his sole and faithful companion during Paul's protracted years of captivity preceding his martyrdom.

During his long and arduous career Paul's health must have been often and sorely tried, and it seems reasonable to suppose that Luke watched and advised him during those strenuous years. Paul pays tribute to him in Colossians 4:14 as "Luke, the beloved physician."

Luke had previously studied medicine, and legend credits him with being the first medical missionary. His works, "The Gospel According To St. Luke" and "The Acts of The Apostles," written in Greek, reflect his medical background; they abound with medical phraseology to such a striking degree that a book, "The Medical Language of St. Luke" by Hobert, was published in Dublin in 1882, pointing out the marked resemblance of Luke's phraseology to that of the Greek medical writers, Hippocrates, Galen, and Dioscorides, with whose works Luke must have been familiar.

Luke is the patron saint of physicians and surgeons, also of those who paint pictures — as he himself loved to do.

His day is October 18.

ANSWER TO WHAT'S YOUR DIAGNOSIS

(From page 993)

She finally lapsed into coma and expired three weeks after admission to the hospital. The post-mortem examination revealed a large squamous cell carcinoma of the right upper lobe of the lungs. The adrenal glands showed squamous cell carcinoma. There was no gross evidence of tumor in the brain but microscopic study showed multiple areas of metastatic squamous cell carcinoma in the meninges with perivascular distribution of the cells. Sections of the optic nerves revealed invasion with metastic squamous cell carcinoma.

Even if you are on the right track, you will get run over if you just sit there.
— The Journeyman Barber



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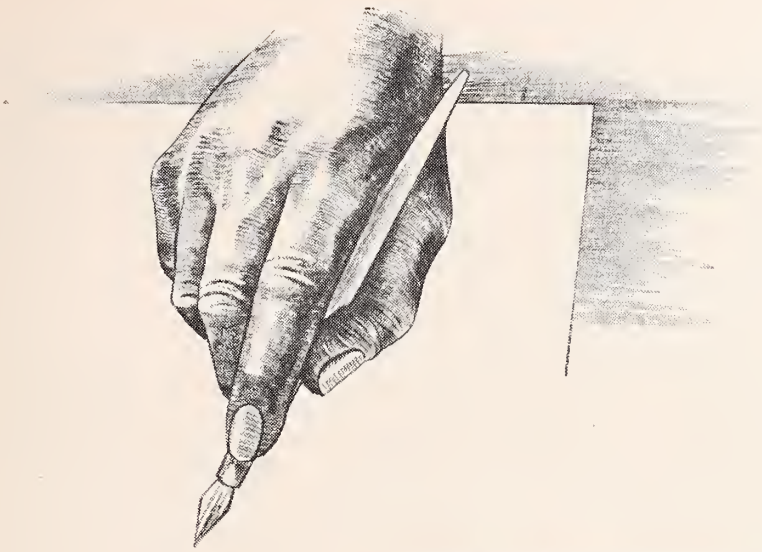
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EDITORIALS

Teach or Perish

Drs. George R. Dunlop and John G. Freymann,[1] in discussing the utilization of private patients in surgical education, have suggested three basic requirements necessary to the successful training of a resident in a private hospital: (1) Devotion of the surgeon to teaching, (2) Proper orientation of resident and (3) Open communication between physician and patient. Such conclusions reflect obvious experience in the field.

The virtual disappearance of charity patients formerly available in adequate numbers, in the training of specialists, makes it essential to develop an adequate substitute for this type of teaching material.

The preceptorial system of training has long since been replaced by the Halsted concept of graded responsibility in the care of the "service patient." The first three years at the Memorial Hospital of Worcester, Massachusetts are essentially preceptorial with the more modern concept of sharing responsibility between the resident and staff on private patients. The dwindling "service patient" is reserved for the last year of residency so that the senior resident may obtain his final year of experience in the independent care of the few available ward patients. They have found that when adequate communication between physician and patient is established, the patient easily understands that modern surgery involves teamwork, and that the sharing of portions of operative procedure is merely a part of the proper orientation of the resident and better care of the patient.

Dunlop and Freymann state "A few surgeons object because they feel insecure with their patients and hospital associates. They cannot share responsibility without inner conflict." General opinion in the New England area is reflected by a resolution of the New England Surgical Society in 1954: "Delegation of a part of the operative procedure to a resident surgeon is implied in the program of total surgical care to private patients. The extent of such participation must be determined by the surgeon in individual cases. Such assignments by the responsible surgeon in the operating room assume an active and actual participation in the operation."

Increasing population within our country and the demand of our citizens for more and more competent and complex medical attention, particularly in the rural centers of our country, present a far greater problem than can be solved by a mere increase in private patient care in university and academically oriented charity hospitals.

Continuous study beyond interneship or residency training is an obvious requirement of all practitioners of medicine if they desire to remain modern. Participation in teaching produces the greatest stimulus to such study. The huge

Continued



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*Schwartz, I. R.:
Current Therap. Res. 3:29, Feb., 1961.

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pool of teaching material within our private non-profit hospitals is available and should be used. The private patient should have the increasing benefit of research and teaching which heretofore have been afforded only to the charity patients.

Our medical universities with their academicians, if they would unbend a bit, could have access to this valuable teaching material on a cooperative basis to the benefit of the patients and the profession at large. It is part of our heritage to teach. If we do not teach and stay modern, we soon become nothing more than a human machine shop.

J. H. Strickler, M.D.
Minneapolis, Minn.

[1]Utilization of Private Patient in Surgical Education. JAMA 184:108, June 22, 1963.

From the Heights We Look Down

I BELIEVE IN the medical code of ethics, in medical specialization, in extensive and continuing research, in board certification, in regulated hospital staff privileges, and in postgraduate training for young and old alike. But do these desiderata supply the answers to the medical needs of all communities?

With the change in the policy of financing our medical schools the administrative directors have found it difficult to maintain the schools' chief function: that of educating students in the art of medicine, scientific research having taken precedence over that art.

Research requires money. Financial grants usually have a tag attached, stipulating how they are to be used, and the majority of them specify research projects rather than routine teaching programs. Since 1940, funds limited to research in medical schools have increased from 15% to more than 50%; they have sky-rocketed from $4 million, 20 years ago, to $221 million at the present time. Although these increased funds have been of great benefit to the schools and to the public, the fact that more than 75% of them come from the Federal Government indicates a trend that should be viewed with some concern.

The layman having heard of the new drugs, the new diagnostic tests for early detection of disease, the new surgical techniques, and other results of research, which have developed in the past ten short years, fails to associate these scientific advances with the increasing specialization necessary for their effective application. He is disconcerted by the special aura of authority and infallibility that characterizes the specialist. He is perturbed by the natural envy he senses among the medical fraternity with regard to the specialist, the board man, the researcher: an envy concealed but nonetheless insidiously present.

All these disturbing factors have had their impact on the layman. Further, he has noted the decline in the number of family doctors and the emphasis on the subdivisions of a specialty to the point where the part is equated with the whole. He expects, even demands, the benefits of this supercare, but he is nevertheless confused by its limitations and complexities.

In the early 1930s, following a national pattern, the University of Minnesota, departmentalized postgraduate training in eye, ear, nose and throat into two sections: ophthalmology and otolaryngology, a separation based on the advances in scientific knowledge and techniques in this particular field of medicine. This move was considered necessary because the undue emphasis placed on the separate parts was jeopardizing the whole.

In rural cities of moderate size with well-staffed medical centers, it now requires two men to cover this restricted field, where previously postgraduate training encompassed the whole. From the patient's standpoint the situation can be illustrated as follows. He has symptoms referable to the eye. The nearest medical center in his rural area is 50 to 150 miles away. He

Continued

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seeks out this clinic staffed with an ophthalmologist. Examination reveals that he has an otolaryngological problem rather than an ophthalmological one. The clinic, however, is not staffed with an otolaryngologist. Therefore, the patient has to proceed to another center, where an otolaryngologist is available. Is this case just a hypothetical one? By looking outside the larger urban areas you will agree that this restrictive diversification in a specialty is not the answer for the rural communities. The statement that the answer lies in the ease of our present transportation is but a subterfuge to cover up the deficiency in rural care, created by the multiplicity of sub-specialities.

For a solution to this particular problem let us restore the combined three-year postgraduate training in ophthalmology and otolaryngology. After these three years those who wish to diversify further can continue their studies, either in ophthalmology or in otolaryngology. The remainder of the postgraduates can go out into the world fully trained in the field of eye, ear, nose and throat. So qualified, their eligibility for the respective boards will not be jeopardized; they will be better equipped to serve their rural patients, and perchance some urban ones as well.

Will this type of specialist be just a "jack-of-all-trades and a master of none?" By no means! Past and present experience precludes that possibility. His training will give him the basie skills and know-how in his expanded field to care for 98% of his clientele. What will he do with the small minority of patients he cannot adequately care for? HE WILL REFER THEM TO THE MASTER — AS HE SHOULD.

C. L. Oppegaard, M.D.
Crookston, Minn.

The Battered Child

Were the experiences of other welfare agencies similar to those of Hennepin County Welfare Department regarding relationships to the medical profession, there would be little need for legislation requiring physicians to report suspected brutality to children. We have always found physicians co-operative in working for the best interests of children when this type of problem has been involved. We are happy, though, for the protection now provided to physicians under the new law, for this will undoubtedly make it easier for them to co-operate with us.

While we certainly agree as to the need for a mandatory reporting law, we believe our present law leaves something to be desired. We had hoped it might be an expression of public policy in terms of concern for children, and a part of our child welfare statutes, rather than emphasizing punitive aspects of its enforcement by including it as part of the criminal laws. Our concerns, of course, are for children, hoping that with adequate service, parents can be helped with their problems and families kept intact. We know there may be times when criminal action might be needed, but we believe that a retributive or punitive approach yields little benefit for the children involved.

We also express our concern for the fact that, under the law as it now stands, there are similar penalties for failure to report inflicted injuries to children as for failure to report a gunshot wound. Though the "battered-child syndrome" is subject to diagnosis by skillful and scientifically trained physicians, it is also subject to individual judgment which may compel a physician to refrain from reporting such injuries; a gunshot wound is more objectively diagnosed. We believe, therefore, that the penalty clause should not be a part of an act primarily drafted for the protection of children and the rehabilitation of families.

Hans W. Hoel, Director
Child Service Division
Minneapolis, Minn.

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Antivivisectionists

Homo sum: Humani nihil a me alienum puto
— Lewis Carroll

In this issue of Minnesota Medicine appears a description of the current activities of those interested in curtailing medical research by obstructing the use of animals for experimentation. The medical profession cannot afford to ignore the arguments of the antivivisectionists or to dismiss them as crackpot notions. As mentioned in this issue there are many bills pending in various state legislatures and in congress, which innocently mask antivivisection in the guise of government "regulation."

It is not enough to point to medical triumphs achieved through animal experimentation, saving myriads of human lives, pitting relief of human suffering against the life of, let us say, the experimental dog. The fanatical antivivisection does not agree that a higher value is to be placed upon human than upon animal life. Does this value judgment ennoble the dog or degrade man?

It is futile to engage in a discussion upon the merits of man over mice, dogs, or monkeys. If individual men do not recognize their own ascendancy, no rational argument will sway them. One cannot refute specious and absurd argument with logic; but one can use reason and persuasion. Every physician who sees patients faces such problems every day. Unfortunately, the rational and persuasive influence of a medical counsellor is of no avail, since the antivivisectionist includes physicians among other scientists as enemies of his cause.

To equate man with animals is to deny the sanctity of human life: to contradict the teachings of Confucius, Buddha, Moses, Mahomet, and Christ.

Antivivisectionists are not necessarily malevolent misanthropes. Some are genuinely interested in the fate of lesser beings. When they exhort the medical profession to use humane methods in animal research, we can but agree and add that organized medicine also insists upon humaneness in animal care.

Reuben Berman, M.D.
Minneapolis, Minn.

Letter to the Editor:

The editorial by Dr. Fred Lyon on "Early Carcinoma of the Cervix" in the July issue of Minnesota Medicine deserves comment of this occasionally controversial subject. The detection, diagnosis and treatment of early carcinoma of the cervix requires the cooperation and collaboration of all concerned. Probably the analogy of the links of a chain would apply — every link must hold to make the chain safe. The main — and double link — is the patient who presents herself annually for cervical smear, pelvic examination and general physical examination. The examiner — general practitioner, internist, surgeon, gynecologist — takes a cervical smear from the squamo-columnar junction and endocervix, not

Continued



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thick, not thin, but a one-cell thick smear, fixed immediately. The third link is a dedicated cytotechnologist screener working at ease under optimum conditions. The fourth link is the individual who does a proper cone biopsy, a seemingly simple procedure but a procedure which requires meticulous care and technique. The next link, the pathologist, determines the diagnosis. Upon his diagnosis depends the treatment. Song (quoted by Dr. Lyon) found on review of sections of cone biopsies that 5 cones in 200 diagnosed as cancer in situ showed lymphatic metastases and were really invasive cancers. The next link in the chain, the treatment, depends on the diagnosis. Dr. Lyon appears to favor radiation therapy for "in situ" or intra epithelial carcinoma. The concept of carcinoma in situ has been accepted for the past twenty years and numerous publications and text books attest that total hysterectomy with preservation of ovaries is curative in unequivocal carcinoma in situ. It is the general consensus of opinion that preinvasive carcinoma may be treated by total hysterectomy with generous vaginal cuff, but that radiation therapy is indicated in invasive carcinoma of the cervix. The final link is, again, the patient who should return annually for cervical and/or vaginal smears and pelvic examination. Only such a complete chain can hope to cure the condition.

Our State Cytology Committee of the American Cancer Society in cooperation with a Speakers Bureau composed of members of the Minnesota State Society of Obstetricians and Gynecologists sponsors an exhibit on this subject with a slide show and taped commentary. This exhibit and speaker are available for the meetings of interested professional and/or lay groups.

Charles H. McKenzie, M.D.
Minneapolis, Minn.

President's Letter (Continued)

In Minnesota, a Citizens Committee for Health and Research has been formed of which Doctor Charles W. Mayo is the honorary chairman, and Doctor Charles Morgan the chairman. This committee has enlisted the support of a large number of individuals and organizations and is conducting an aggressive campaign of educational publicity.

From a constructive viewpoint a number of recommendations have been made by The National Society for Medical Research and other interested groups. These include:

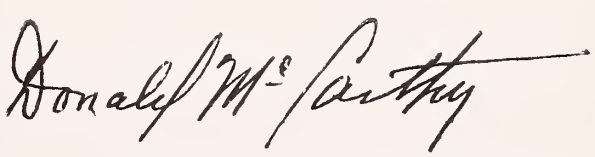
1. Research in animal husbandry including the development of objective data on space and exercise requirements.

2. Increased training of personnel for laboratory animal care, including more veterinarians especially trained in laboratory animal medicine.

3. Better and increased communication of latest information on animal care methods and on the development of improved designs for animal care facilities.

Other recommendations will undoubtedly be added.

It is believed that the announced purpose of these bills can be much more fully achieved by a constructive approach including the recommendations detailed above, rather than by restrictive and obstructive legislation which may do untold damage to medical progress.



Minnesota State Medical Association
President
Donald McCarthy, M.D.



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Curbstone Consultation

Cold Pressor Test

QUESTION: What is the cold-pressor test?

M.D., St. Paul

ANSWER: A common feature of essential hypertension is that patients with this disease exhibit unusual circulatory lability to various stimuli. The cold-pressor test is most valuable in demonstrating such vascular hyper-reactivity among such patients in the latent phase of their disease. The test is done by placing the patient in a supine position with one hand immersed above the wrist in water at four to five degrees centigrade for one minute. As many blood pressure readings as possible are taken from the opposite arm during the minute of immersion. The difference between the highest systolic and diastolic and the corresponding basal readings provide the measure of vascular reactivity. The specific conclusions to be drawn from the results of such tests have not been clearly defined at this time by the various investigators working in this field.

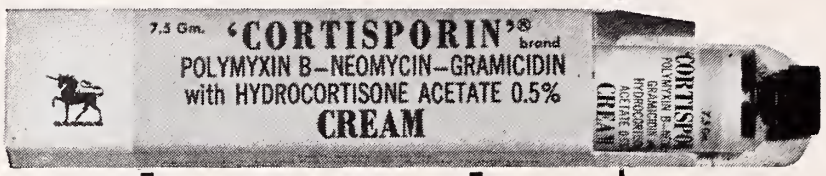
Hepatitis

QUESTION: I have a patient who had infectious hepatitis during World War II. What can I advise him regarding immunity to future attacks?

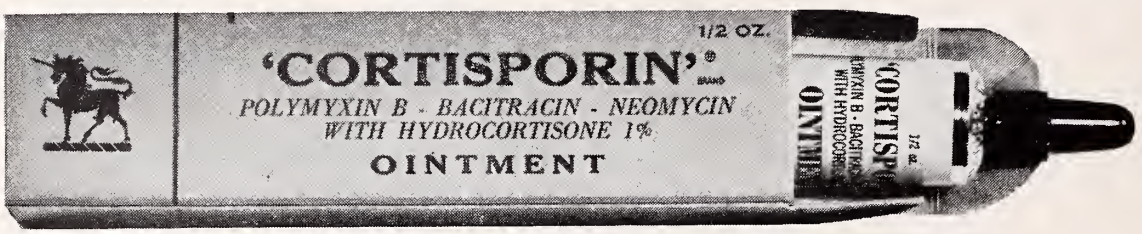
M.D., Mankato

ANSWER: Infection with either Virus IH or Virus SH is followed by resistance to re-infection with the homologous virus. Re-infection with Virus IH may possibly be life-long similar to that resulting from measles. Available information indicates that Virus SH may be associated with a peculiar immunologic response inasmuch as human immune serum globulin and convalescent plasma obtained after Virus SH infections failed to protect human volunteers from contracting Virus SH infections. Probably some immunity is conferred in Virus SH infections for a year or so. Not only does no cross immunity exist between infections due to the IH and SH viruses, but some work indicates that those previously infected with one virus may have a higher incidence of infection when exposed to the other type when compared with a control group.

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Industrial Medicine

Occupational Medicine Today

At one time occupational medicine was primarily the emergency treatment of industrial injuries. Today this has changed. The emergency treatment of the industrial injured has descended to a position of lesser importance. Occupational injuries now account for a very small portion of the total cost of illness to industry. The workman who is injured expects to receive the finest emergency medical care as soon as possible, and he looks to the company to provide this care. Probably the first and most important function of the industrial physician is his role in pre-employment examinations and the establishment of fair basic physical standards for the industry in which he is employed.

As the field of occupational health has become more complex, it has logically followed that the field of environmental hygiene is becoming increasingly important to the physician in occupational medicine. New processes involving new chemicals are being developed every day to produce new and better products for the public, but bigger problems for the industrial physician. The elimination and control of occupational hazards due to various gases, solvents and dusts, or to ionizing radiation, is a responsibility of the physician in occupational medicine, working in co-operation with other departments within his company. There are special problems connected with the diagnosis and treatment of these exposures which require knowledge of the chemical makeup and toxocologic features of the substances involved. A physician practicing occupational medicine must know these processes and chemicals involved within the plants he services, and be in a position to recognize the special kinds of occupational exposure with which an employee comes into contact and to diagnose and treat the ills that may result.

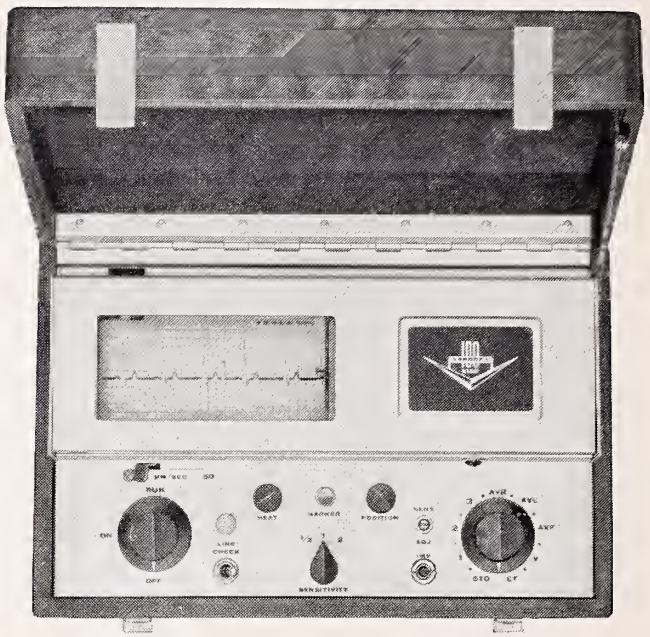
Counseling on emotional problems, both occupational and nonoccupational, is not always feasible in a busy private office, but many of these problems first come to light in the industrial medical department. They do not necessarily call for a trained psychiatrist, but rather for a physician who is familiar with psychological and emotional reactions, who knows the temperament of the individual, and who is familiar with the occupational situation, and has time to talk to the patient.

Occupational medicine as practiced in the modern industrial plant of the present should never in any way attempt to replace the physician in private practice. Indeed, it is frequently the industrial physician in routine examinations or preliminary counseling who first may see a person in need of medical care and then refer the employee to his family physician or to a specialist. This type of relationship can and does strengthen the bond of friendship between the industrial physician and his local medical colleagues.

John A. Williams, M.D.
Committee on Occupational Health
Minnesota Medical Association

Editors Note: Industrial Medicine will be feature in Minnesota Medicine from time to time.

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Severely compounded fractures of an extremity involving the major vessels at first sight present a formidable appearance to the physician caring for the unlucky patient. Yet, many of these injuries, especially if no severance of the major nerves has occurred, may be converted into a relatively straightforward problem if the fracture can be reduced by internal fixation and the vessels can be repaired. Successful replacement of a severed extremity with preservation of viability was shown experimentally many years ago.[1] However, only with the current emphasis on vascular surgery during the past decade has the generally prevailing pessimistic view of these injuries been changed to one of optimism. If the distal limb is worth salvage and the patient's condition permits the added time at surgery, reconstruction should be attempted.

Case History

A 50 year old white male, was admitted to the Minneapolis General Hospital on January 11, 1962 after being struck by an automobile as he crossed the street. He suffered bilateral compound supracondylar femoral fractures. The left lower leg was cool, pulseless and numb. A quick appraisal of the wound of this left leg revealed an obvious complete severance of the popliteal artery and laceration of the popliteal vein. The soft tissue injury to the right leg was less severe than the left. His condition initially was critical but with rapid blood replacement and compression to control hemorrhage his condition stabilized and he was taken to the operating room.

Thorough examination of the wound of the left leg was made following irrigation and debridement and the skin and subcutaneous tissues were found to be completely severed; only the posterior tibial and peroneal nerves and the hamstring tendons remained intact. The rent in the vein was repaired with 5–0 arterial silk. Then the two ends of the popliteal artery were dissected free from the surrounding tissue and trimmed off square so that they could be accurately

Continued

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LEDERLE LABORATORIES, A Division of AMERICAN CYANAMID COMPANY, Pearl River, New York

Lederle

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approximated. The anastomosis was made with 5-0 vascular silk. As the Rommel tourniquet on the proximal vessel was released the color of the leg improved. After placement of two 5/16" Rush rods to immobilize the fracture, careful closure of the soft tissues was accomplished. The xrays illustrate the fracture before and after internal fixation.

The wound of the right leg was irrigated, debrided, and closed. To shorten the anesthetic time this extremity was put in traction utilizing a Kirschner wire through the tibial tubercle. Postoperatively the color remained good in the distal left leg and a strong dorsalis pedal pulse could be palpated. Recovery was uneventful.



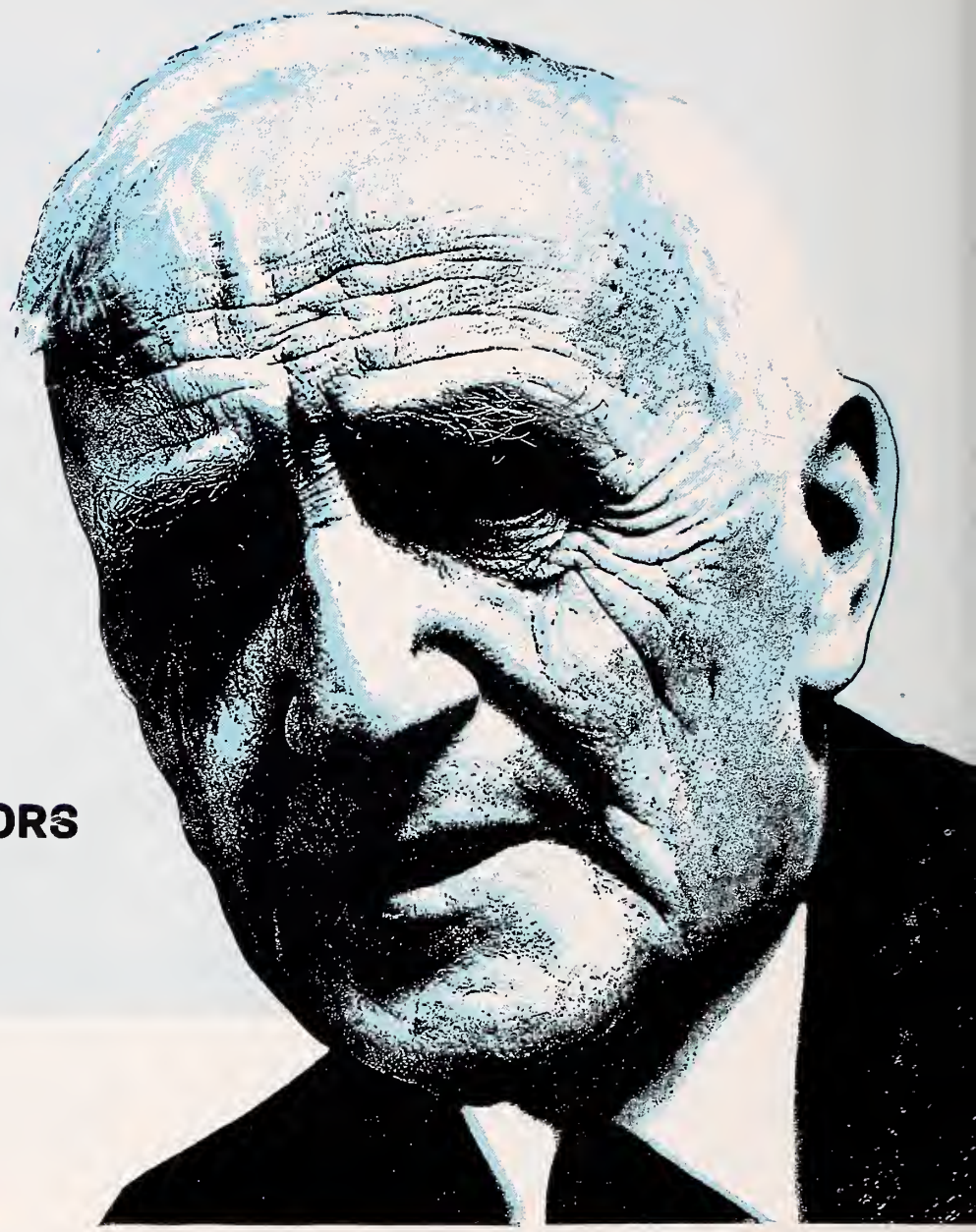
Several points are worth emphasizing: first, good fixation is necessary to protect the vessel anastomosis from stretch or compression; second, injuries of this nature when incorporated into plaster must be carefully checked lest impending gangrene be overlooked; third, surgeons now must strive for maximum salvage utilizing extensive vascular reconstructions where indicated. Major vessel defects in compound fractures down to the wrist and ankle should be repaired or bridged with an autogenous vein graft to prevent future claudication.

Harrison H. Farley, M.D.
Minneapolis General Hospital

Reference

1. Carrel, A. and Guthrie, C. C.: Complete Amputation of the Thigh, with Replantation, Amer J Med Sci 131:297, 1906.

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1. Ford, R. A., and Blanchard, K. P.: J.-Lancet 78:185, 1958.

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Rheumatism in present day usage is widely used to indicate pain, stiffness or deformity of joints. Public Health surveys indicate that this illness ranks second only to mental diseases as a cause of disability in the United States.

Arthritis in Greek meant gout and is derived from the word arthron, meaning joint. Rheumatism is derived from the Greek word rheumatismos which is literally translated "to have a flux" (a discharge). So rheumatoid arthritis can literally be interpreted as a fluid discharge from the membranes of an inflamed joint.

The incidence of rheumatoid arthritis is much harder to establish, since the disease itself is hard to define. Now, however, there are definite clinical criteria for making this diagnosis. The authors of two or three studies in separate countries have estimated the prevalence of rheumatoid arthritis to be 2–3 percent of persons over 15 years of age. It should be noted, however, that these studies were based on surveys using the presence of a positive rheumatoid factor test rather than the presence of clinical symptoms.

Some studies indicate that one half or more of rheumatoid arthritis patients are unable to carry out their ordinary occupations. However, some authors say that this disorder is potentially reversible and that "80 to 85 percent of patients can be improved."[26]

This disease is not a respecter of age and may have its onset anywhere from infancy to old age. In the United States it most frequently begins in the fourth decade with a female predominance of 3:1. However, in persons over sixty the sex incidence is about equal. It is said that the chances of an individual acquiring rheumatoid arthritis increases until the age of 55 and thereafter gradually decreases.

Etiology

The etiology of rheumatoid arthritis has been thought by different persons to be infectious, psychogenic, endocrine deficiency, genetic, enzyme system imbalance, and/or immunological. Actually the contributing role of each of these

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*Medical Grand Rounds, Mt. Sinai Hospital, Dec. 11, 1962.

Continued

factors has not been clearly defined or excluded; and at one time or another in history each has been thought to be the main factor.

Infectious

Rheumatoid arthritis was once called *infectious arthritis* and was thought to be due to streptococcal infections. Some adherents to this theory believed in foci of infection as sources of "toxic reaction" and had teeth and tonsils removed in an effort to eliminate these foci. Others believed in a theory of direct infection; and many efforts were made to culture every culturable organism from the inflamed joints, blood, and subcutaneous nodules. Today viral infection is still suspected and work continues to be done in this field. The infection theory is attractive because the inflamed joints, granulomas, fever, leukocytosis, anemia, elevated erythrocyte sedimentation rate and lymph adenopathy are all characteristic of infectious processes. However, all attempts to transmit rheumatoid arthritis from person to person have failed.[20]

In the laboratory, arthritis with some of the self-perpetuating and prolonged characteristics of rheumatoid arthritis has been produced in mice with the PPLO-type[5] organism and in swine with *Grysipilothrix rhusiopathiae.*

Stress

The relationship of stress and trauma to the onset of rheumatoid arthritis has been known for many years. Because of these relationships the disease is classified by some investigators as a psychosomatic illness, and a personality pattern of repressed aggressiveness and hostility has been described. It is of interest that rheumatoid arthritis is rarely found in psychotics.[20] However, the stress experiences suffered by those that develop rheumatoid arthritis are also undergone by many persons who do not get the disease.

Steroid

As soon as the beneficial results of steroids on the symptoms of rheumatoid arthritis were known, it was postulated that the disease was due to a deficiency of adrenal cortical hormones. This was rapidly disproven, however, and it should be noted that many investigators feel that steroids do not change the course of the disease, but only give symptomatic relief.[26] Also, the higher incidence in women and the amelioratory effects of pregnancy suggest hormone imbalance; but therapy with sex hormones has been unsuccessful.

Heredity

The theory that there is a hereditary susceptibility to this disease has a growing number of advocates. Studies such as those by Lawrence[15] and Ziff[32] show the incidence of the rheumatoid factor in relatives (parents, siblings, and children) of patients with rheumatoid arthritis to be four times greater than the incidence in the population as a whole. However, it should be remembered that these are studies of the incidence of the rheumatoid factor and not of clinical rheumatoid arthritis itself.

From these studies Lawrence and Ball[15] drew the conclusion that the rheumatoid factor has a recessive incidence. However, it apparently takes time for the rheumatoid factor to develop, because some studies have shown its incidence in the general population to be 2–3 percent, whereas in this study it was 13 percent in persons more than 65 years old as indicated in Table 1.

TABLE I
Positive S.C.A.T. in Relatives of Rheumatoid Arthritis Patients

	Relatives		Controls
	Greater than	Less than	Greater than
Age	65	65	65
Positive Rheumatoid Factor	38%	16%	13%

This study included 183 relatives of patients with positive rheumatoid factor and/or clinical rheumatoid arthritis symptoms, in comparison with 183 randomly-selected controls. From the figures the investigators concluded that 38 percent minus 13 percent, or 25 percent, represented the recessive incidence, and from this they calculated the incidence of the gene in the population to be 0.36 or about one out of three persons. They further assumed that the 13 percent represented the homogenisity level in the population. Many aspects of the study, such as inadequate numbers and incomplete conclusions, can be criticized, but nevertheless it serves to exemplify the investigative work being done in this area.

Autoimmune Factor

It is felt by Theilin that rheumatoid arthritis is due to "a disturbance of enzyme systems which regulate the formation and degradation of the mesenchyma." He also feels that in "later stages" of rheumatoid arthritis "autoallergic antibodies occur which maintain the process and determine the development of rheumatoid arthritis."[29]

The theory that rheumatoid arthritis is an autoimmune disease is one of the most popular today, but has not been proven. This is an attractive theory because the rheumatoid factor has been shown to be a 19 S globulin, capable of reacting with aggregated or partially changed gamma globulin. These 19 S globulins have been shown to originate in plasma cells and lymph nodes and are high in carbohydrate, as are other known antibodies such as cold agglutinins.[20]

Laboratory Evaluation

About 1930 when rheumatoid arthritis was still called "infectious arthritis," work was presented showing that a particular Streptococcus could be isolated from the blood of rheumatoid arthritis patients. As further proof of the etiologic role of the Streptococcus it was shown that the serum of rheumatoid arthritis patients agglutinated the organisms.

Agglutination Reaction

Other workers could not isolate the organism but did confirm the agglutinated reaction. However, it was shown that this agglutinin reacted with *all* group A hemolytic streptococci, and also with some pneumococci and staphylococci.

It was further demonstrated that an antistreptococcus antibody was present in the sera of most persons from infancy. This revelation in turn led to the theory that the agglutinin (rheumatoid factor) was reacting with this antibody, the streptococcus merely serving as a carrier.

Continued

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Practically standard treatment, now, for bleeding ulcer. Why is Maalox included? Antacid therapy *must* continue long after the wound has healed, and patients started on Maalox tend to stay on Maalox. It tastes good; it's effective and will not cause constipation—three important reasons for Maalox over the long haul. Some physicians, we are told, order Maalox routinely for hospital patients on drugs which could irritate. They feel it reduces the likelihood of gastric discomfort. Supplied: Suspension; Tablets No. 1; Tablets No. 2. (Each Maalox No. 1 Tablet is equivalent to 1 teaspoonful and each Maalox No. 2 Tablet is equivalent to 2 teaspoonfuls of Suspension.)



ROHRER WILLIAM H. RORER, INC., FORT WASHINGTON, PA.

The next development came when a technician with rheumatoid arthritis happened to be working with rickettsial pox, which she contracted. Following recovery she set up complement fixation tests against richettsia, using her sera and sensitized sheep erythrocytes. It was found that her serum agglutinated the sensitized cells. However, it was suggested that this may have been due to the rheumatoid arthritis.

In 1947 Rose and associates, using sheep erythrocytes sensitized with anti-sheep-cell rabbit serum, showed that a significant number of rheumatoid arthritis patients had something in their serum that would agglutinate their cells. It was noted also that this agglutination correlated well with the Streptococcus agglutination test discovered 10 to 15 years earlier.

Latex Particles

Due to their uniform characteristics, latex particles were used as a carrier system for the rheumatoid arthritis agglutin test, introduced by Singer and Platz in 1956.[27] This reaction may be outlined as follows.

Cohn Fract II (gamma globulin)	(absorption) →	latex particles ↓ +
↓ ppt.	←	rheumatoid factor

They demonstrated that when latex particles were added to the sera of rheumatoid arthritis patients, flocculation occurred in about 20 percent of the cases. If commercial globulin was added, the positive reactions were raised to about 70 percent.

The Rheumatoid Factor

Further advance was made when more accurate refinements for the separation of the rheumatoid factor were achieved. An example of this work was that done with anion exchange chromatography, resulting in 95 percent pure 19S globulin (the sedimentation weight of that component of the serum containing gamma –1 and alpha –2 macroglobulins) and no 7S gamma globulins.[16] Also, this study indicated that there were at least two rheumatoid factors, one reacting with rabbit gamma globulin in an immune complex and another reacting with aggregated human gamma globulin.

Other studies have shown that the agglutination activity of the serum of rheumatoid arthritis patients was lost when a 22S component was separated by ultracentrifugation. This 22S component could be separated into a 19S component and a 7S component. Further qualitative analysis indicated that there were about 6 or 7 7S molecules for each 19S molecule. The agglutinating activity was shown to be in the 19S globulin.

It is on this reaction of the 19S globulin with gamma globulin that all of the present tests are based, whether the carrier particle be red blood count erythrocytes, latex particles, Bentonite particles, etc. These tests show about a 95 percent agreement.[1,2]

There have been many further modifications which have resulted in greater sensitivity.

Now that we have seen how much study is being done in relation to the rheumatoid factors it should be clear that many investigators regard this 19S globulin as just a reflection of the disease process and not related to it in any

Continued

etiologic manner. Further evidence in this direction is the occurrence of clinical rheumatoid arthritis in agammaglobulinemic patients. At least one of the patients had been noted to have a subcutaneous nodule.[9]

Related and Unrelated Diseases

Before we leave the rheumatoid factor we should mention that the number of "related diseases" (C.T. diseases) and some "unrelated diseases" exhibit this reaction.

Most of these reactions are usually of low titer and the disease not readily confused with rheumatoid arthritis. Of the "related diseases" lupus erythematosus runs the highest with up to 30 percent positive latex fix tests.

"Unrelated diseases," with or without joint symptoms, such as liver disease, Kala-azar, sarcoidosis, and syphilis all may have up to 10–15 percent positive latex fixation tests. In all of these the sheep cell agglutination test is usually negative.

It is of note that the sera of patients with sarcoidosis contains a 22S complex and that in syphilitic sera a 19S component may be precipitated, distinct from the Wasserman antibody.[31]

Other Laboratory Tests

There are a number of other nonspecific laboratory aids that one might use to support a clinical impression in the diagnosis of rheumatoid arthritis. During the exacerbations these usually include an elevated E.S.R., slight to moderate normocytic hypochromic anemia, and a slight to moderate leukocytosis in acute cases versus a normal white blood count or a mild leukopenia in chronic cases. Mild reversal of A/G ratio may also be seen as well as a positive C-Reactive Protein test.

Synovial Fluid Examination

One study indicated that the synovial fluid examination was highly diagnostic because the fluid had the characteristic of an exudate and showed the following differences from the normal:[13]

1) Increased total nitrogen by Kjeldahl method.
2) Decreased mucin.
3) Decreased relative viscosity.
4) Decreased A/G ratio.
5) Increased alkaline Phosphatase.
6) Increased RBC's and WBC's especially granulocytes.
7) Positive rheumatoid factor test in about 95 percent.

Biopsy

Other authorities recommend synovial biopsy such as the punch biopsy of the supropatellar synovia with a special trocar.[28] The authors consider this an office procedure, but admit that the changes seen — chronic hypertrophic villous synovitis — are not pathognomonic.

The nodule may be easily confused with that of rheumatoid fever, although it is more commonly larger and longer-lasting. The biopsy of both has a characteristic granuloma-like appearance. When large these granulomas tend to have a necrotic center surrounded by pallisading epithelial cells with surrounding lymphoid infiltration.

Of course, X-ray changes are diagnostic but are usually obtained too late to be of use in the initial efforts of diagnosis.

Diagnostic Criteria

To make the clinical diagnosis more standardized the American Rheumatism Association set up a set of exact criteria in 1956 and then modified it in 1958 to the present criteria listed in Table 2.

TABLE 2 (20)
Diagnostic Criteria for Rheumatoid Arthritis

1. Morning stiffness
2. Pain on motion or tenderness in at least one joint (observed by physician)
3. Swelling (not bony) in at least one joint (observed by a physician)
4. Swelling of at least one other joint (observed by a physician) within a three month period
5. Symmetrical joint swelling (observed by a physician)
6. Subcutaneous nodules
7. Roentgenologic changes typical of rheumatoid arthritis
8. Positive agglutination test for "rheumatoid factor"
9. Poor mucin precipitate from synovial fluid
10. Characteristic histologic changes in nodules

Classic rheumatoid arthritis requires seven of the above criteria.
Definite rheumatoid arthritis requires five of the above criteria.
Probable rheumatoid arthritis requires three of the above criteria. At least one of the first five criteria must have been continuous for at least six weeks.
Possible rheumatoid arthritis requires two of the following criteria. The total duration of joint symptoms must be at least three weeks.

1. Morning stiffness
2. Tenderness or pain on motion
3. History or observation of joint swelling
4. Subcutaneous nodules (observed by a physician)
5. Elevated sedimentation rate or C-reactive protein
6. Iritis

Differential Diagnosis

Using these criteria few diseases can be confused with rheumatoid arthritis. Of these few, lupus erythematosus should be mentioned, because the joint involvement can be identical with rheumatoid arthritis and can even be multiple.

However, if the onset is within a matter of hours and the acute joint inflammation recedes completely within 1–2 days, one should be suspicious of lupus erythematosus. Also, if one is careful during the examination he will often find tendon and/or fascial plane involvement around the hands and feet.[23]

Three other diseases with the joint findings of rheumatoid arthritis are ankylosing spondilitis, psoriatic arthritis, and the arthritis of ulcerative colitis. However, each has its own specific symptoms which should lead one to the diagnosis of the additional disease component.

Case Summary

D. N., is a 54-year-old white male whose last admission here was on 9-25-62, with a chief complaint of black stools without pain or hematemesis, nausea, vomiting or diarrhea. His past history revealed:

1. That he was taking A.S.A. 50 grs. q/d, as well as Benemin one q/d, and colchicen one or two q/wk.
2. Psoriasis for 18 years.
3. Psoriatic arthritis for 17 years, beginning in ankles and then involving almost all other joints and not controlled on any therapy, including Cortisone. In fact steroids had to be discontinued two years prior to admission because of the onset of cushenoid facies and hypertension.

Continued

4. Gout, first diagnosed seven or eight years prior to admission and well controlled.

It was also noted that he passed a brown stone in the urine every 6 months.

Physical examination revealed psoriatic skin lesions, mildly "cushenoid facies," and marked joint deformities, which included a "poker spine," bilateral painless "frozen hips" with about 10–20° of motion, bilateral fluid-filled warm tender knees with decreased range of motion, decreased ankle and wrist joint range of motion, and "flipper" hand deformities, plus some distal phalangeal joint enlargement.

Laboratory studies showed hemoglobin 12.0 gm%, WBC 10,000 with 75% neutrophiles and sed. rate 26. Stools for occut blood − 3+, trace, negative. Electrolytes were within normal limits excepting potassium 3.6. The A/G = 3.5/3.1 and calcium = 8.2 mg%. Although uric acid was not run at this time, determinations on previous admissions were 9.5 and 11.6 mg%.

At this time the patient's gout was asymptomatic and under control with medications.

Dennis Frisbie

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3. Christian: Characterization of the Reaction (Gamma Globulin Factor) in the FII Precipitate Reaction and the FII Tanned Sheep Cell Agglutinate Test. J Exp Med 108:139, 1958.
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8-32 can be obtained from Grand Rounds Editor.

IT'S THE LAW

Bad faith of insurance company agents imputed to principals.

When an insurance company agent issues a policy in which he, the agent, has given false answers in regard to the health of the policy holder, knowing that the policy holder gave the correct answers, the insurer then cannot escape liability where the application was processed by a company salesman or an agent of the company. "The insured is in good faith while the bad faith of the agent is impugned to his principal who thereby waives any right to claim forfeiture of the policy on the ground that the answers in the application concerning the health of the insured are false."

Gleason vs. Bankers Life & Casualty Co. 147 2D 86 (CT APP Louisiana Oct. 16, 1962)

Hypochondriac

Hypochondriacs should never go to medical lectures. Invariably they become afflicted with symptoms of any disease they hear about. One such man, having returned from a lecture on diseases of the kidney, immediately called upon his doctor.

The doctor attempted to explain that in that particular disease there were no pains or discomfort of any kind.

"I knew it, "gasped the hypochondriac. "My symptoms exactly."



Abstracts, Briefs and Commentaries

CHOLECYSTOCOLIC FISTULA

The authors present a case of cholecystocolic fistula developing after prolonged (three months) employment of cholecystostomy drainage tube.

The case report serves as an example for the concise review of the history of gallbladder surgery of this type, and the discussion is composed of a review of some of the fundamental or basic principles involved in cholecystostomy. The authors point out that a cholecystostomy ordinarily is regarded as a temporary procedure. However, if one elects to postpone definitive operation indefinitely because of varying circumstances, the possibility of subsequent biliary tract disease is in the neighborhood of 50 percent. They feel that a repeat cholecystostomy is usually a much easier procedure than the first and can be done readily under local anesthesia by merely reopening the healed sinus tract.

To prevent inevitable recurrent problems, the authors suggest that at operation initially one should make every attempt to remove all of the calculi, and that the cholecystostomy tube is to be removed in one to two weeks unless drainage is excessive. They recommend as the more ideal management that the definitive operation, cholecystectomy, be done some four to six weeks after the initial drainage.

J. S. Strickler, M.D.
Minneapolis, Minn.

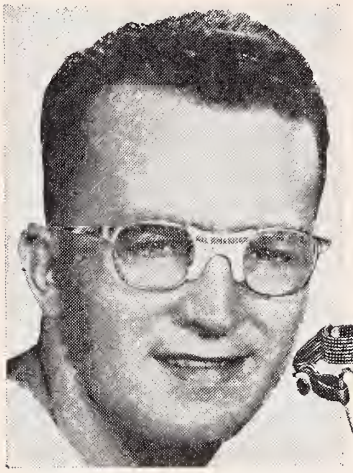
Peter Hutchin, M.D., Timothy S. Harrison, M.D., Nicholas A. Halasz, M.D.: Ann Surg 157; 587, April 1963

PANCREATIC FUNCTION IN INFECTIOUS HEPATITIS

The function of the pancreas was studied in 30 young men affected with infectious viral hepatitis. The investigation consisted in the evaluation of the bicarbonate levels and the lipase activity in the duodenal contents before and after the injection of secretin, and was started immediately at the onset of the disease before the institution of treatment with hormones. The results were compared with those obtained in 60 healthy contratest subjects. The statistical evaluation of the tests showed an exocrine insufficiency of the pancreas in all 30 patients. There was a great difference between the results of the tests made before the injection of secretin and those made after the injection. Before the injection the tests primarily showed a diminished lipase activity in the duodenal contents. After the injection the diminished bicarbonate values was the most frequent anomaly. Prednisolone was administered to 15 patients, and mild glycosuria de-

Continued

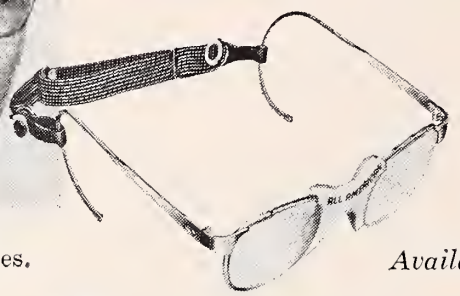
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veloped in 8 of these. The tests were repeated in 10 convalescent patients after a period of from 2 to 3 weeks following clinical recovery and all showed normal values. The possible role of pancreatitis in the posthepatic syndrome should be further investigated.

Courtesy of References and Reviews — JAMA

Charmot, G., Clergeaud, P., and Andre, L.: Presse Med 71:57 Jan 12 1963

REGIONAL ENTERITIS

Regional enteritis is a progressive or relapsing disease which mainly affects young adults. It is characterized by a granulomatous, necrotizing, ulcerating and cicatrizing process which is usually limited to the terminal portion of the small intestine but may involve any part of the alimentary tract.

Most cases require surgical treatment, usually for partial obstruction of the small intestine. This was present in 47.7 percent of the 257 cases operated on at the Mayo Clinic between 1945 and 1955. An abdominal mass, usually the result of chronic perforation, was noted in 35.8 percent of the total. Gross gastrointestinal bleeding and acute perforation were uncommon.

The preoperative diagnosis was uncertain in only 15 cases, 13 of which had palpable abdominal masses interpreted by x-ray as due to cancer.

Resection of the affected organs were done in 86 percent of cases and bypass operations in 12.8 percent. Resection with primary anastomosis was the method of choice; bypass operations were reserved for patients with acute obstruction or very extensive disease.

Further operation for recurrence was required in 40 percent of the cases which initially had a bypass operation, and in 27.7 percent of those whose second operation was a bypass. Only 16 percent of the patients who had a resection as the initial operation and 17.1 percent of those who had resection as their second operation required further surgery for recurrence.

Follow-up showed that of the living patients who had received initial definitive surgery 84.4 percent were in good health and could carry out their normal activities, whereas of 166 who had had previous abdominal operations only 78.9 percent of those living at the time of follow-up were in good health.

If an operation is to be done for regional enteritis, it is essential that proper and selective definitive surgery is performed at the right time.

Courtesy of World-Wide Abstracts

Barber, K.: Ann Surg 156/3:472

STEROIDS AND ULCER

The belief that ulcers on the greater curvature are malignant has been held for many years, though some recent series have been 50 percent or more benign.

It is particularly important to recognize the greater-curvature ulcers that develop in patients on long-continued steroid therapy because without exception they are benign. Characteristically they lie in the antral part of the stomach. They are usually moderate to large, with sharp, punched-out margins. Healing occurs with minimal fibrosis. The patients are usually on moderately high doses of steroids.

Owing to the frequency of these ulcers it is important for the radiologist to examine the greater curvature very carefully in patients taking steroids. He should bear in mind the tendency of barium to pocket between the coarser mucosal folds along the greater curvature. An ulcer crater had been dismissed as such a pocket in one of Low's cases.

Courtesy of World-Wide Abstracts

Low, F. M.: British Med J 1962/5319:1580

Continued

HEMIHYPERTROPHY AND MALIGNANCY

Observations are reported on 5 children with congenital hemihypertrophy in whom malignant disease developed. Four had Wilms tumor (adenomyosarcoma of kidney), and one had adrenocortical carcinoma with sexual precocity. Ten patients with Wilms tumor (4 presented and 6 previously published) included 4 boys and 6 girls. The tumor was on the same side as the hemihypertrophy in 7 and on the opposite side in 3. The hemihypertrophy was on the right in 3 and on the left in 7 cases. Children with congenital hemihypertrophyshould have careful regular clinical examinations for the detection of early signs of malignancy involving the kidneys or adrenal glands.

Courtesy of References and Reviews — JAMA

Benson, P., Vulliamy, D., and Taubman, J.: J Lancet 1:468 March 2 1963

HEXACHLOROPHENE BATHING OF INFANTS

Hexachlorophene soap was successfully used to reduce the incidence of skin infections in severely malnourished, chronically ill infants in hospital environments. Liquid soap with 3% proved to be superior to bar soap with 2% hexachlorophene. Prolonged daily bathing is effective even in face of vary adverse sanitary conditions. Its use is recommended as a routine procedure for susceptible infants.

Courtesy of References and Reviews — JAMA

Graham, G., and Morales, E.: Amer J Dis Child 105:462 May 1963

INFANTILE ECZEMA

The routine use of x-ray therapy and dehydration procedures have little if any place in the management of infantile eczema nowadays, and antihistamines play at best a minor role. Basically, treatment now consists of (a) local therapy, (b) avoidance therapy, and (c) supportive measures. Topical therapy with antibiotics may be indicated where there is secondary infection, and in the more severe cases the systemic administration of antibiotics may be required. The author takes a cautious view of steroid therapy and doubts the justification of immediately instituting such treatment before the more conservative remedies are tried.

Local Therapy. The type and extent of local therapy depends on the condition existing at the time. Where lesions are moist, the author suggests starting treatment with wet dressings. He says that Burow's solution (3 per cent) applied for several days is a good preliminary procedure. Coal tar, preferably in a vanishing cream vehicle, is probably the most practical and effective agent in treating almost all such lesions. It should be applied liberally over involved areas about every six hours. This is a simple and inexpensive treatment, relieving the itching and clearing up the lesions, often dramatically. The author stresses the importance, in infantile eczema, of removing as much of the incrustation as possible so that the medication can get into intimate contact with the lesions. Frequent washing with warm water is helpful in this respect; in the author's experience, he says, emulsified bath additives free of mineral oil had been effective in clearing and rehydrating the skin. A small amount can be added to the bath water or applied directly with a gentle wiping before applying the topical agent.

Avoidance Therapy. While the allergic component in infantile eczema is recognized, correlation of skin tests and specific hypersensitivity is quite unpredictable. Some foods, wool, and certain synthetic fibers have been incriminated. Where food allergies are suspected, elimination diets may prove helpful. Most noted for allergic involvements have been eggs, orange juice, and milk, and these are not too difficult to eliminate from the child's diet. Ascorbic acid may be substituted for the orange juice, and soybean milk may be used to replace cow's milk. If there is a family history of allergy the mother should be encouraged to breast-feed her infant. Sometimes denaturing the lactalbumin of cow's milk by boiling the milk for ten minutes makes it possible to retain it in the diet.

Supportive Measures. Supportive therapy involves not only the physical measures but a consideration of the psychodynamics of the family unit in which the infant is found. In certain cases, parent-child tensions, from whatever cause, may be a significant factor. If restraints are necessary to discourage scratching, the author suggests trying gauze splints or covering the hands with socks in order to avoid use of forceful physical restraints, which may have a bad psychological effect on a child. Starch baths are helpful, as well as sedation, particularly at nighttime.

Courtesy of Medical Abstract Service
Berwyn, Illinois

Lewis, S. R.: GP: 24:94 December 1962

MANAGEMENT OF INFECTED ABORTION

Of 1,003 patients admitted to a hospital from January, 1957 to June, 1961, for treatment of abortion of various types, 342 (34%) had infected abortion. Interference with pregnancy was admitted by 21% of them, but it was assumed that interference had occurred in all cases of infection. No correlation was found between parity or duration of pregnancy and the severity of the infectious process. The basic management philosophy was the administration of antibotics until the patient became relatively afebrile before the uterus was emptied, except if significant hemorrhage or other complications required immediate surgical intervention. This form of conservative management was modified later, in the sense that dilatation and curettage were performed as soon as the patient reached a relatively afebrile status, with temperature below 100 F (37.75 C) for 12 hr. Penicillin and oxytetracycline given intravenously, with streptomycin given intramuscularly, gave good result in severe sepsis. Chloramphenicol, alone or combined with erythromycin, was administered to those allergic to penicillin and to those who failed to respond to a penicillin combination within 36 to 48 hr. The importance of the intensity and promptness of antibiotic therapy is stressed, in order to prevent an easily treated type 1 abortion from progressing to a stage of advanced sepsis.

Courtesy of References and Reviews — JAMA

Goodno, J., Cushner, I., and Molumphy, P.: Amer J Obstet Gynec 85:16 Jan 1 1963

HEAD PAIN OF TEMPOROMANDIBULAR JOINT ORGAN

Temporomandibular joint arthrosis, which is a significant cause of head pain, is caused by pathologic malocclusion of the teeth in about 90 per cent of the cases, and if treatment is instituted at a strategic time, improvement is often dramatic. It is quite likely that a considerable number of such patients make the

Continued

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medical rounds before being accurately diagnosed. Once the vicious cycle of pain-muscle-spasm-more-pain is set up, referral mechanism may transmit the pain not only to the head; the pain may also radiate into the neck and shoulder, going down the arms to the fingers, and even may affect the lumbar spine. Many of these patients will be seen first in general practice, and the primary problem is diagnostic. Being aware of the entity's existence is of central importance. Once the problem is identified, management requires close medical-dental coordination.

An interfering contact of the teeth causes deflection of the mandible with malpositioning of the condyles within the temporomandibular joints, with associated joint dysfunction. The position of the condyles within the fossae is accurately depicted by x-ray (diagrammatically illustrated in the article). The fundamental problem is one of differentiation. Where no other disease state is evident: arthritis, head or ear infections, migraine headache, eye disorders, etc., the physician should consider the possibility of temporomandibular joint dysfunction. Its presence should be suspected if there is evidence of these manifestations: clicking, crackling noises, crepitation, tenderness, and pain in and around the temporomandibular joint. Although it may not be accompanied by pain, the clicking or crepitation indicates implication of the temporomandibular joint. The pain may be of the dull, constant aching type or may be so intense as to resemble that of tic douloureux. Occasional locking of the jaw is another manifestation. This locking, says the author, is easily reducible at first, but becomes increasingly irreducible with time, with eventual restriction of the jaw opening. This is followed by recurrent subluxation of the joint opposite the painful, restricted joint. Noting whether the pain is lancinating, paroxysmal, or dull, and what specific movement causes the pain is especially important. There may be a strong psychogenic factor in some of these cases.

It is up to the dentist to handle the pathologic maloccusion of the teeth, and it is the physician's responsibility to evaluate the psychogenic and nutritional status of the patient and undertake indicated treatment. Once the diagnosis is established and the patient's dental problems are solved, results are dramatic. With remission of the pain and the restoration of normal mandibular movement, the dentist-physician team can successfully treat the existing pathologic occlusion and prevent any return of the symptoms.

Courtesy of Medical Abstract Service
Berwyn, Ill.

Shore, N. A.: New York S J Med 62:3580 November 15 1962

THERAPY OF OCCLUSIVE CEREBROVASCULAR DISEASE

Anticoagulant and surgical treatment for patients categorized into groups with transient ischemic attack, progressive stroke, and completed infarct are discussed. Patients with transient ischemic attacks (intermittent insufficiency) appear to be benefitted by both surgical and anticoagulant therapy as measured by long-term prevention of cerebral infarcts. Patients with progressive (evolving) stroke respond to anticoagulant therapy, and surgical therapy has not clearly improved on the statistical results in this group. Patients with completed (stable) infarct are not candidates for either type of therapy in so far as the existing deficit is concerned. Data for long-term prophylaxis have not been determined.

Courtesy of References and Reviews — JAMA

Siekert, R., Whisnaut, J., and Millikan, C.: Ann Intern Med 58:637 April 1963

Continued

TREATMENT OF ACIDOSIS

Metabolic acidosis is the most critical physiologic alteration of extracorporeal circulation in excess of two hours. The increased blood hydrogen ion results from (1) progressive decrease in perfusion blood flow (2) development of debt in muscle and (3) inability of liver to metabolize excess load of anerobic metabolites.

An organic hydrogen ion acceptor, (Tris buffer) was used in two groups of patients. Those patients, whose cardiac correction required less than 120 minutes cardiac bypass, needed only Tris 400 mgm added to each 500 ml. priming blood to maintain a normal acidbase equilibrium. The second group of patients required additional Tris buffer during the bypass perfusion in order to maintain a normal acid-base balance.

An evaluation of renal function demonstrated no marked difference except the increased bicarbonate excretion in Group II. Likewise hematologic studies showed no difference in these patients and a control series.

Tris appears to be a safe, potent agent for use in the treatment of acute hypoxic acidosis from whatever cause.
Comment: This drug (Tris) should have broad application in other forms of respiratory and metabolic acidosis.

J. T. Grismer, M.D.
Minneapolis, Minn.

Moore, D., Bernhard, W. F.: "The Prevention and Treatment of Acute Metabolic Complications Associated with Prolonged Extra-Corporeal Circulation" J. Thoracic Surgery 45, 565, 1963

RADIATION PNEUMONITIS

A review is made of the history, clinical features, pathogenesis, pathology physiological disturbances, prognosis, and treatment of radiation pneumonitis. The condition is characterized by an early stage manifested clinically by cough and dyspnea, and pathologically by desquamation of alveolar lining cells. The early stage usually regresses spontaneously. The late stage is minifested by progressive respiratory distress, diffuse pulmonary fibrosis, invalidism and death that is often ossociated with infection of the lungs. The review discloses that the pathogenesis of the early stage is not clear, and the factors that determine regression or development of the late reaction are not identified.

Courtesy of References and Reviews — JAMA

Smith, J.: Amer Rev Resp Dis 87:647 May 1963

DROWNING AND THE POSTIMMERSION SYNDROME

A review of 3,000 autopsy protocols of drowning victims and the study of the clinical records of 50 resuscitated and hospitalized persons of near-drowning has led the author to the following conclusions: In the fatal drowning case there is an interchange of water and electrolytes between the alveoli and the blood and an escape of plasma into the lung. The frequent aspiration of mineral debris, aquatic flora and fauna, and vomitus into the lung has to be considered in the clinical management of the rescued person. The acute pulmonary edema of the resuscitated victim is accompanied by a pneumonitis of rapid onset, which may progress to lung abscess and empyema. Hemoconcentration caused by pulmonary edema was seen in both fresh- and sea-water cases. Transient cardiac irregu-

larities and asystole were found, but ventricular fibrillation, though it may occur, has not been noted. Hemoglobinuria may be associated with near-drowning in fluids both hypertonic and hypotonic to the blood. Transient or fatal renal dysfunction may occur after submersion in fresh and in salt water. The lesion found at autopsy was an acute tubular necrosis similar to that seen in shock and other types of renal hypoxia. The swimmer who hyperventilates before attempting an endurance underwater swim runs the risk of syncope and drowning.

Courtesy of References and Reviews — JAMA

Fuller, R.: Milit Med 128:22 Jan 1963

FRIEDLANDER PNEUMONIA

During the past year, 21 patients with an acute Friedländer pneumonia were seen. In 8, admitted within a few days from the onset of the illness, the physical and radiological findings of (a) pulmonary consolidation and (b) loss of pulmonary volume were observed over the affected hemithorax. These 8 patients given appropriate antibiotic therapy early, all recovered clinically, although in several of them the infection resulted in permanent residual changes. Serial clinical and radiological observations for periods varying from 3 to 40 weeks suggested that the combination of pulmonary consolidation and loss of pulmonary volume in these patients was best explained on the basis of the acute pulmonary necrosis affected by the Friedländer bacillus; this combination is not observed in patients with acute gram-positive pneumonias. It is suggested that in patients who present evidence of rapid loss of pulmonary volume during an acute pulmonary infection, Friedländer pneumonia be considered in the differential diagnosis and appropriate antibiotic therapy be instituted early, if further evidence to support this diagnosis can be provided.

Courtesy of References and Reviews — JAMA

Manfredi, F., Daly, W., and Behnke, R.: Ann Intern Med 58:642 April 1963

CYSTS OF FOREGUT

Foregut cysts frequently cause symptoms in the first 3 decades of life. The symptoms consist of dyspnea, wheezing cough and sputum, dysphagia, stridor, and those symptoms associated with right heart strain. Symptoms and the radiological appearance of the uncomplicated cyst mimic mediastinal tumor and mediastinal obstruction. The symptoms and radiological appearance of the ruptured infected cyst simulate those of lung abscess, diaphragmatic hernia, ruptured hydatid cyst, cavitated peripheral carcinoma, and pulmonary tuberculosis. The differentiation from other cysts is made thus: with intralobar sequestration there is a systemic arterial blood supply; with hydatid cyst there is a positive intradermal skin test, whereas radiologically the appearance of a pericystic pneumatocele, followed by the water-lily sign, is diagnostic; with emphysematous cysts the signs of associated bronchitis are present; and in the presence of pseudocysts there is a previous history of lung abscess, staphylococcic infection, or tuberculosis. The author recommends that cysts be remover when first diagnosed.

Courtesy of References and Reviews — JAMA

Robinson, C.: Canad Med Ass J 88:844 April 20 1963

Continued



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RECTAL BLEEDING IN CHILDREN

Rectal bleeding is common in children, but in most cases it is minimal. The authors review observations on 108 children who had repeated episodes of slight rectal bleeding constituting a diagnostic problem or bleeding of such severity as to warrant hospitalization. These children were observed between 1953 and 1960. Their ages ranged from 8 days to 14 yr, and there were 57 boys and 51 girls. A tabulation of the causes of rectal bleeding shows that polyps and gastroenteritis were the cause in 26 cases each. No cause was found in 19 cases, and 13 of these 19 children had mild bleeding and were treated nonsurgically; recurrence or severity of bleeding necessitated surgical treatment in the other six. Anal fissure or fistula was found in only 9 children. This small number is misleading, because most children with these lesions were treated as outpatients. Intussusception was the cause of bleeding in 8 patients, Meckel's diverticulum in 6, milk allergy in 8, and ulcerative colitis in 2. The following conditions were found in one patient each; thrombocytopenic purpura, proctitis with rectal prolapse, a Schonlein-Henoch's syndrome, and multiple duplication of the intestinal tract. In the presence of massive hemorrhage blood replacement is of first importance, because what may be inconsequential blood loss in an adult may threaten the life of an infant or young child. If severe bleeding continues, surgical treatment should be carried out at once, but in the presence of less severe bleeding the authors consider the following tests minimal: complete blood cell count, including platelets, and determination of bleeding, clotting, and prothrombin times. If these reveal abnormalities, special tests may be necessary. Sigmoidoscopic examination and barium and air-contrast studies are considered mandatory. Cultures of fecal material should be examined for ova and parasites.

Courtesy of References and Reviews — JAMA

Abrams, B., and Lynn, H.
Amer J Surg: 104:831 Dec 1962

JUVENILE POLYPS OF COLON AND RECTUM

A series of 158 consecutive patients with juvenile polyps of the colon and rectum were studied. The age-distribution of the patients was bimodal. In the childhood group of 99 patients the age range was 1 mo to 10 yr, and in the adult group of 59 patients it was 17 to 61. Rectal bleeding was the most common complaint, and the rectum and sigmoid the most common sites. The gross and microscopic appearances in the 2 groups were similar, characteristic, and easily distinguished from those of adenomatous polyps. These lesions did not undergo malignant change. Inflammation and ulceration of the mucosa may initiate the lesion.

Courtesy of References and Reviews — JAMA

Roth, S., and Helwig, E.
Cancer: 16:468 April 1963

INFECTIOUS MONONUCLEOSIS

One-hundred patients with infectious mononucleosis were treated by means of a double-blind treatment program. The patients were divided into 6 groups designated as follows: (1) placebo, (2) aspirin, (3) chloroquin, (4) prednisone, (5) uncontrolled treated, and (6) uncontrolled untreated. The various groups were analyzed in regard to fever, signs, symptoms, duration of the illness, total hospital stay, and hospitalization after therapy. None of the drugs named appeared to be beneficial to the basic disease except perhaps intravenous steroids which altered the disease in 2 patients who were treated for tonsillar hypertrophy and pharyngeal edema. Complications other than noted in these 2 pa-

tients were few. The authors conclude that the treatment for the usual case of infectious mononucleosis at present is purely symptomatic.

Courtesy of References and Reviews — JAMA

Schumacher, H., Jacobson, W., and Bemiller, C.
Ann Intern Med: 58:217 Feb 1963

TRICHOMONIASIS

A total of 192 patients was treated with one of 6 compounds for vaginitis caused by *Trichamonas vaginalis*. The results of treatment were evaluated by the culture technique. All compounds gave symptomatic relief in 70% to 90% of the patients, but the cure rates varied. Metronidazole was the most recent therapeutic agent used, and its cure rate of 96% was the best obtained to date. It was given in an oral dosage of 1,000 mg daily for 10 days. Nausea and vomiting appeared to be the most common side effects. The authors found that the patients could control the symptoms by taking milk or antacid tablets; only one patient discontinued therapy because of gastric irritation. Transient hematological and neurological side effects have been reported by other workers. In view of this fact, routine hematological and neurological examinations before and after treatment have been instituted.

Courtesy of References and Reviews — JAMA

Clark, D., Solomons, E., and Siegal, S.
Obstet Gynec: 20:615 Nov 1962

POSTSTERILIZATION SYNDROME

The records of 250 women who underwent sterilization at a clinic of the Panamanian Social Insurance Department are reviewed. Reasons for seeking the sterilizing operation (the type of operation is not specified) varied, but economic circumstances were the most often alleged cause. The youngest patient was a 15-yr-old woman who had already undergone 3 cesarean sections, and the oldest were 44-yr-old women operated on for uterine fibroma. The poststerilization syndrome is defined as a set of symptoms which appear within 2 yr of the sterilizing operation and include nervousness, irritability, sexual frigidity, abdominal pain, menstruation disorders, and obesity. Data on the occurrence and degree of the symptoms was obtained through questionnaires. Computation of the replies indicated that 36% of the women in this series were satisfied with the operation, 32% were dissatisfied, and the remaining 32% were resigned to the consequences, since the operation had been performed under medical indication for various conditions. In 22% of the cases reviewed symptoms such as changes in personality, frigidity, and nervous disorders created serious marital problems which resulted in divorce.

Courtesy of References and Reviews — JAMA

Reverte, C.
Arch Med Panamen: 11:39 Aug 1962

OBSTETRICS AND CEREBRAL PALSY

A retrospective study of 79 cerebral palsy patients supports the century old conclusion of Little that obstetrical factors are important considerations in the etiology of cerebral palsy. The authors attempts to correlate the pre- and para-

natal history of the patient, relating it to his neurologic, musculoskeletal, and psychologic defects. Their declared twin ojectives were to (a) interest the obstetrician in cerebral palsy and (b) investigate preventable factors in its etiology. They found that only 29 per cent in the entire series were neither premature nor followed abnormal gestation or labor.

Of the histories studied, 50 pertained to male patients and 29 females. Of the entire group, 45 (57 per cent) were of the spastic type; 25 (32 per cent) were of the extrapyramidal type (athetoid, atonic, or ataxic); and 9 (11 per cent) were classified as mixed. The records were drawn from a half-dozen institutions throughout the state. The records were studied for type, sex, race, birth weight, prematurity, abnormal obstetric factors, onset of symptoms, and mental deficiency.

The 45 spastic cases were subclassified as follows: quadriplegia, 28;; hemiplegia, 11; paraplegia, 4; diplegia, 1; and triplegia, 1. Among the extrapyramidal cases 11 were athetoid, 10 atonic, and 4 ataxic. At the time of the survey only 2 of the hospitals handled Negro obstetric cases, so the recorded distribution is 15 non-white and 14 white, somewhat impairing the significance of this statistic. Classified as premature were 31 patients (39 per cent) and 47 (60 per cent) were full-term. Classification of 1 patient was unknown. Of the prematures weights were as follows: less than 1,000 gm., 2; between 1-2,000 gm., 17; between 2-2,500 gm., 12.

Of the premature births 45 per cent were associated with traumatic delivery, with a striking incidence of breech delivery. In 7 cases (23 per cent of the prematures) prenatal factors alone were involved, including placenta previa, 1; abruptio, 1; toxemia, 2; and 1 each of lues, amnionitis, and anemia. Twenty-three per cent of the mothers had previously delivered premature children and 4 of these had previously aborted. Twenty per cent of the mothers had previously had abortions alone; 1 also had a history of a hydatidiform mole. One of the women had previously had 2 breech deliveries before the birth of the patient, which was a compound presentation.

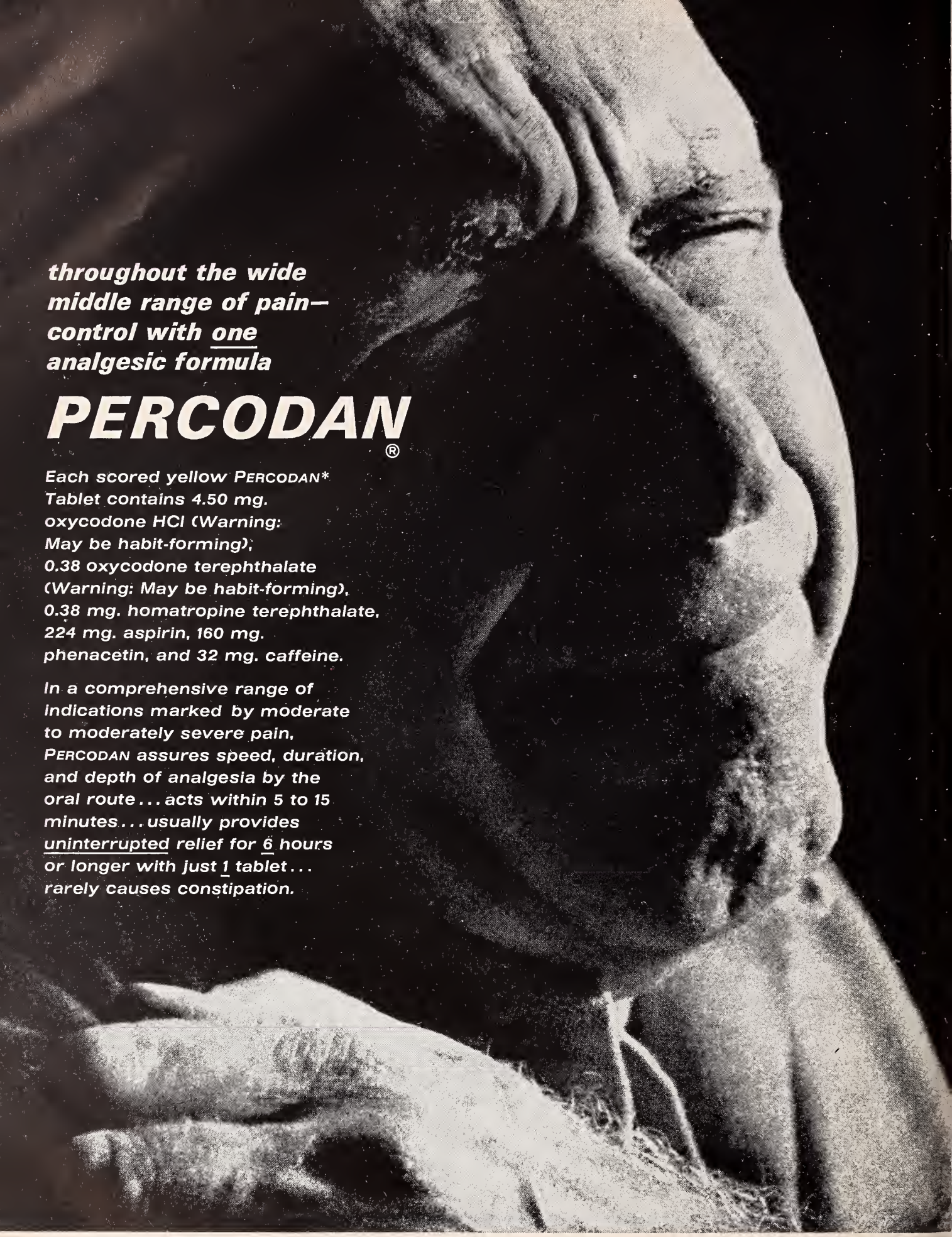
Of the full-term group, 24 had a history of abnormal obstetric factors, 10 with prenatal factors alone and 14 paranatal factors. The first included toxemia, erythroblastosis, placenta previa, diabetes mellitus, and fetal distress; the second, breech delivery (4 cases), precipitate delivery, prolonged labor with difficult forceps delivery, compound presentation, elective Caesarean section, pitocin induction with cord prolapse, and pitocin induction with hypotension during caudal anesthesia.

Brain damage was suspected right after birth in only 13 per cent. There was a high degree of association (53 per cent) with mental deficiency.

The authors believe that the high association between prematurity and fetal mortality in the previous pregnancies of the mothers of these infants should alert the obstetrician and influence his counsel to couples planning more children, or to multiparous females who have had previous fetal mishaps.

Courtesy of Medical Abstract Service
Berwyn, Illinois

Nebel, W.
N Carolina Med J: 23:329–335 August 1962



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Special Articles

A Summary of Acid Base Balance

● **Part I**

● **Basic Science**

SEYMOUR HANDLER, M.D.*
THOMAS SEMBA, M.D.*
Minneapolis, Minn.

THE CONCENTRATIONS of hydrogen ion, bicarbonate, and carbon dioxide in blood are the three best guides of acid-base balance. The normal limits of blood pH are maintained by chemical buffering, respiration, and renal regulation of acids, bases, and electrolytes.

The pH is the negative logarithm of the hydrogen-ion concentration and is preferred over molar hydrogen-ion concentration for simplicity. If the normal hydrogen-ion concentration of blood is .000000042 M, the pH is simply 7.38. Hydrogen ion is the single primary ion determining the degree of acidity of blood. The old concept of defining cations as "bases" and anions as "acids" is chemically unsound and may only confuse rather than clarify acid-base balance. Na^+, like other cations, is neither acid nor base. Cl^- is not an acid but a weak base.

Bronsted Definition of Acids and Bases

All acids are proton donors and dissociate to yield hydrogen ion and a conjugate base. Bases are hydrogen ion acceptors. Strong acids dissociate completely, yielding hydrogen ion and a weak conjugate base. HCl is a strong acid, ionizing completely into H^+ and the weak base Cl^-. On the other hand, weak acids ionize incompletely since hydrogen ion is bound tightly to a strong conjugate base. Carbonic acid, H_2CO_3, is a weak acid, ionizing only partially to H^+ and the conjugate base bicarbonate, HCO_3^-.

Buffers

A chemical buffer is resistant to pH change and is usually a weak acid paired with a salt of the weak acid. The salt is a compound with the same anion as the weak acid and has the ionizable H^+ replaced by a cation. Carbonic acid and sodium bicarbonate may form a buffer pair. Carbonic acid is weakly ionized into H^+ and HCO_3^- and exists almost completely as molecular nonionized H_2CO_3. In contrast, sodium bicarbonate salt is highly soluble and is completely ionized into Na^+ and HCO_3^-. Therefore, the predominant forms in the solution are H_2CO_3, HCO_3^-, and Na^+. Hence,

$$H_2CO_3 \rightleftharpoons H^+ + HCO_3^-$$
$$NaHCO_3 \rightarrow Na^+ + HCO_3^-$$

Na^+ contributes nothing to the acidity but does assure electrical neutrality. Thus, if the total quantity of H^+ is increased in the solution by addition of acid, the excess H^+ is buffered by combining with HCO_3 shifting the equilibrium to the left, forming more molecular H_2CO_3. If

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alkali is added, removal of H^+ from the solution is buffered by production of H^+ from rapid dissociation of H_2CO_3.

The Henderson-Hasselbalch Equation

H_2CO_3 ionizes in plasma according to the law of mass action. The products of ionization $H_2CO_3 \rightleftharpoons H^+ + HCO_3^-$ are in equilibrium characterized by a constant K:

$$\frac{[H^+] \times [HCO_3^-]}{[H_2CO_3]} = K$$

or

$$[H^+] = K \times \frac{[H_2CO_3]}{[HCO_3^-]}$$

If the negative log is taken of both sides of the equation

$$-\log [H^+] = -\log K + (-) \log \frac{[H_2CO_3]}{[HCO_3^-]}$$

or

$$pH = pK + \log \frac{[HCO_3^-]}{[H_2CO_3]}$$

The expression of pH is the Henderson-Hasselbalch equation. pK is a constant of 6.10 for H_2CO_3 at body temperature.

Physically dissolved CO_2 is in equilibrium with carbonic acid:

$$CO_2 + H_2O \rightleftharpoons H_2CO_3$$

The quantity of CO_2 dissolved in plasma is directly proportional to the partial pressure of CO_2 or the pCO_2 in plasma. The plasma pCO_2 is equal to the tension of the CO_2 in the alveoli of the lung. The concentration of plasma CO_2 may be expressed as the product of the pCO_2 in mm. of Hg and the coefficient α or 0.0301 mM/L/mm Hg. Ordinarily the concentration of dissolved CO_2 is 1000 times the concentration of H_2CO_3. Since carbonic acid exists in immeasurably small quantity and is dependent on CO_2 tension $\alpha \cdot pCO_2$ is substituted for $[H_2CO_3]$ in the equation.

$$pH = pK + \log \frac{[HCO_3^-]}{\alpha \cdot pCO_2}$$

$$pH = pK + \log \frac{[HCO_3^-]}{0.0301 \times pCO_2}$$

In the Henderson-Hasselbalch equation .0301 pCO_2 or H_2CO_3 and HCO_3^- are the buffer pair. The ratio of the buffer pair defines the pH. The kidney regulates bicarbonate. Respiration regulates pCO_2. The carbonic acid-bicarbonate buffer system in plasma depends on the buffer capacity of hemoglobin and cannot function effectively in plasma alone.

The average normal arterial blood pH is 7.4, the $[HCO_3^-]$ 24 mM/L of plasma, and the pCO_2 40 mm Hg. Normally the product of 0.0301 x pCO_2 is 1.2 mM/L and the $\frac{[HCO_3^-]}{\alpha \cdot pCO_2}$ ratio is $\frac{20.}{1}$. An abnormal pH will result from an abnormal value of either $[HCO_3^-]$ or pCO_2, causing the $\frac{20}{1}$ ratio to change. HCO_3^- concentration changes are metabolic; changes of pCO_2 are respiratory. If a low pH results from a high pCO_2 the acidosis is respiratory and uncompensated. If a high pH results from a low pCO_2 the alkalosis is respiratory and uncompensated. If a low pH results from either loss of bicarbonate or the addition of acid, the acidosis is metabolic and uncompensated. If a high pH results from an addition of bicarbonate or the loss of acid, the alkalosis is metabolic and uncompensated.

Any abnormal value of either bicarbonate or pCO_2 with a proportionate abnormal value of the other member of the pair restoring the pH to 7.4 and the buffer ratio to $\frac{20}{1}$ is a compensated acidosis or alkalosis.

The Davenport Diagram

The Davenport Diagram is the graphic analogue to portray the relationships of the Henderson-Hasselbalch equation (Fig 1).

pH varies directly as the logarithm of the bicarbonate concentration and inversely with the logarithm of the CO_2 tension. Bicarbonate concentration is plotted on the vertical axis, pH on the horizontal axis, and pCO_2 on the curved diagonal isobars. The curved isobar of pCO_2 at 40 mm Hg. intersects bicarbonate at 24 mM/L. and the normal pH 7.4. Isobars to the left denote increasing CO_2 tension and isobars to the right decreased pCO_2. Respiratory changes parallel the pCO_2 isobars.

The slanted straight line is the buffer line or CO_2 absorption curve of normal oxygenated

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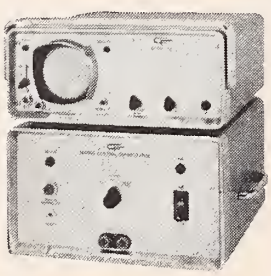
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whole blood. The slope defines the rate of change between bicarbonate concentration and pH. Increasing pCO_2 is the addition of carbonic acid and the pH decreases as the plasma biocarbonate rises at a rate determined by the buffer slope. The CO_2 enters the red cell and bicarbonate emerges as chloride shifts into the cells. The converse is true if the CO_2 tension is lowered. An increased hemoglobin concentration increases the buffer capacity and makes the slope steeper. Primary metabolic effects involve addition or subtraction of bicarbonate and change of bicarbonate and pH occur along a particular pCO_2 isobar parallel to the buffer line.

If the pH is low from a high pCO_2 the acidosis is respiratory. If the pH is high from a low pCO_2, the alkalosis is respiratory. If the pH is low from decreased bicarbonate the acidosis is metabolic. If the pH is high from increased bicarbonate the alkalosis is metabolic.

Respiratory Regulation of CO_2

The retention or elimination of volatile carbonic acid is controlled by the rate and depth of breathing. Therefore, hyperventilation lowers the pCO_2, releases carbonic acid, and increases the pH. Hypoventilation elevates the pCO_2, adds carbonic acid, and decreases the pH. Low pH is the greatest stimulus to respiration. When the pH falls to 7.30 respiration increases; by pH 7.20 ventilation is multiplied fourfold. An elevation of pCO_2 accelerates ventilation, but the effect is twice as prominent if acidosis coexists. On the contrary, however, an alkaline pH may not be associated with a diminution of ventilation.

CO_2 excess is a greater stimulant to hyperventilation than oxygen deficit. High concentrations of CO_2 may stimulate breathing 20 times more than severe hypoxia. CO_2 diffuses through tissues and fluids 20 to 30 times faster than O_2, and the generous provision for CO_2 makes death more likely from hypoxia than from CO_2 excess.

Control of Plasma Bicarbonate Concentration

While the volatile carbonic acid member of the buffer pair is handled rapidly by the lung, the concentration of plasma bicarbonate is affected chiefly by: (1) other anions; (2) hemoglobin; (3) a renal threshhold; and (4) the pCO_2.

If the total cation structure of the plasma is normal, bicarbonate concentration usually varies

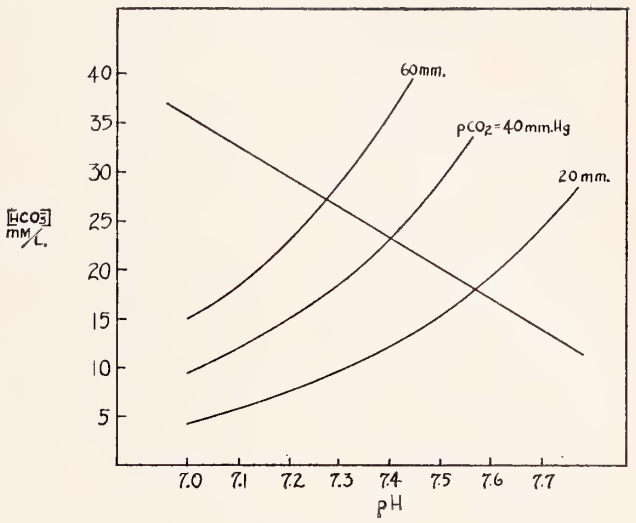


Fig. 1

inversely as the concentration of chloride. A similar relationship exists between bicarbonate and the anions of organic acids. As an organic acid is neutralized by the bicarbonate of the buffer system, the anion of organic acid remains, while the H_2CO_3 formed from the reaction decomposes to allow CO_2 to escape from the lung. Increased intake of bicarbonate may increase bicarbonate concentration.

The buffering action of hemoglobin is essential in the formation of HCO_3^-. Large quantities of CO_2 are produced in the tissues and diffuse into the venous blood. A small amount dissolves in the plasma and equilibrates with car-

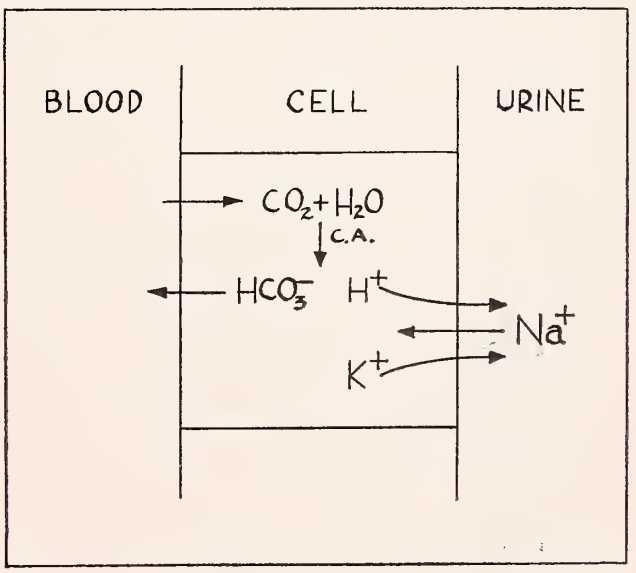


Fig. 2

Continued

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bonic acid. Most of the CO_2 diffuses into the red cells and is rapidly hydrated by carbonic anhydrase into carbonic acid.

$$\text{C.A.}$$
$$CO_2 + H_2O \rightleftharpoons H_2CO_3$$

The carbonic acid dissociates into an equal number of hydrogen ions and bicarbonate ions. The reduction of oxyhemoglobin and the CO_2 entrance into the red cell occur simultaneously. Reduced hemoglobin is a base and quickly accepts the proton leaving HCO_3^- in excess. HCO_3^- leaves the red cell for the plasma as Cl^- shifts into the red cell. For each mole of oxygen released from hemoglobin 0.7M of H^+ from the hydration of CO_2 can be buffered by reduced hemoglobin without change in pH through this isohydric shift. Therefore, increasing CO_2 tension elevates the plasma HCO_3^- through hemoglobin buffering. The higher the hemoglobin concentration the greater the buffering effect.

An apparent threshold exists for plasma bicarbonate between 25 to 27 mM/L. If acids accumulate from a metabolic disorder, bicarbonate is not excreted if the plasma level is below 25 mM/L. If alkalosis is a result of loss of acid or accumulation of bicarbonate, the bicarbonate usually is excreted if the plasma level exceeds 27 mM/L. However, bicarbonate excretion by the kidney also varies inversely as the pCO_2 despite the plasma bicarbonate levels. Even though the bicarbonate increases with an elevated pCO_2 as a result of the buffer action of hemoglobin, a high pCO_2 promotes bicarbonate reabsorption by the kidney, raising the plasma bicarbonate further. Conversely, despite a lowered bicarbonate with a decreased pCO_2, the kidney excretes bicarbonate.

Renal Regulation of Hydrogen Ion

Renal regulation of acids and bases is a continual, dynamic process. At the normal blood pH 7.4, the usual urine pH is 6.0. Since the plasma pH and the glomerular filtrate pH are equal, the filtrate must be acidified during normal urine formation by the excretion of hydrogen ion. The urine of health has pH of 4.7 to 8.0. Urine with a pH 4.7 has a hydrogen ion concentration 800 times that of plasma and glomerular filtrate. To maintain a constant blood pH the kidney must form and excrete 50 to 100 mEq. of hydrogen ion daily from the nonvolatile acids formed during catabolism.

Hydrogen ion is excreted into the tubular urine in exchange for sodium ion but must do so by sharing a common transport mechanism with potassium. (Fig. 2).

Normally, more hydrogen is exchanged for sodium than potassium. Hyperkalemia promotes increased potassium excretion and decreases hydrogen ion excretion. Hypokalemia is associated with increased hydrogen ion excretion and decreased potassium excretion. Therefore, a paradoxical alkaline urine may occur with hyperkalemic acidosis and paradoxical aciduria may accompany hypokalemic alkalosis.

Carbonic acid in the renal tubular cell is the constant source of acid for the hydrogen ion exchange mechanism. The carbonic acid is derived from the dissolved CO_2 which is freely diffused throughout blood, interstitial fluid, cells, and urine. The CO_2 is rapidly converted by carbonic anhydrase in the tubular cell to carbonic acid which ionizes into hydrogen ion and bicarbonate. Hydrogen ion is excreted into the urine and sodium and bicarbonate are reabsorbed.

About a third of the hydrogen ion is excreted with phosphate and the remainder with ammonia. By excreting phosphate with two atoms of hydrogen (H_2PO_4) instead of with one atom ($HPO_4^=$), sodium ion is conserved and hydrogen ion is eliminated. The hydrogen ion is bound to phosphate and does not contribute to the actual free acidity of the urine but is part of the titratable or total acidity as measured by release in a test tube by an alkali. Ammonia formed in the renal tubular cell combines with hydrogen ion and is excreted as ammonium (NH_4^+).

Therefore, if the blood pH is acidotic, the urine pH may decline to pH 4.7, dihydrogen phosphate is excreted in place of monohydrogen phosphate, increasing titratable acid, ammonium formation increases, and bicarbonate reabsorption is complete. Hyperkalemic acidosis is an exception; the urine may be paradoxically alkaline.

If the blood pH is alkalotic, the urine pH may rise to pH 8.0, monohydrogen phosphate is excreted instead of dihydrogen phosphate to conserve hydrogen-ion diminishing titratable acid, ammonium formation stops, and bicarbonate excretion increases. Hypokalemic alkalosis is an exception; the urine may be paradoxically acid.

(Part II — to be continued next month).



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Medical Records in Minnesota Hospitals*

SHORTAGE OF trained medical personnel, incomplete recording of patient data by medical and hospital personnel, lack of space and facilities to adequately promote maintenance and safe keeping of records, and failure to recognize and establish medical record practice as an accepted hospital service are generally the major problems encountered, particularly in small hospitals. These inadequacies were made kown as a result of a comprehensive study of medical record practice in Minnesota hospitals.

Findings

The information reported here presents a summary picture of the status of medical record practice in hospitals in Minnesota. All phases including personnel, employment conditions, department administration, techniques and procedures, and facilities and equipment were studied.

1. A total of 388 medical record personnel worked with medical records in 177 general hospitals. Of these, 58 were trained medical record librarians (10 part-time), 14 were trained medical records technicians, and the remainder (316) had no formal training in medical records.
2. Seventy hospitals were served by medical record librarians and/or technicians either on a full or part-time basis.
3. Administrators in more than 25% of the hospitals without medical record librarians would employ trained personnel if available.
4. In many small hospitals medical record personnel had multiple responsibilities, the most common of which were medical record management and business office work.
5. The annual medical record work load per individual averaged 1,638 records. Because medical record librarians used more extensive procedures, they processed fewer than this average.

TRANSFUSION REACTION ANALYSIS

PATIENT

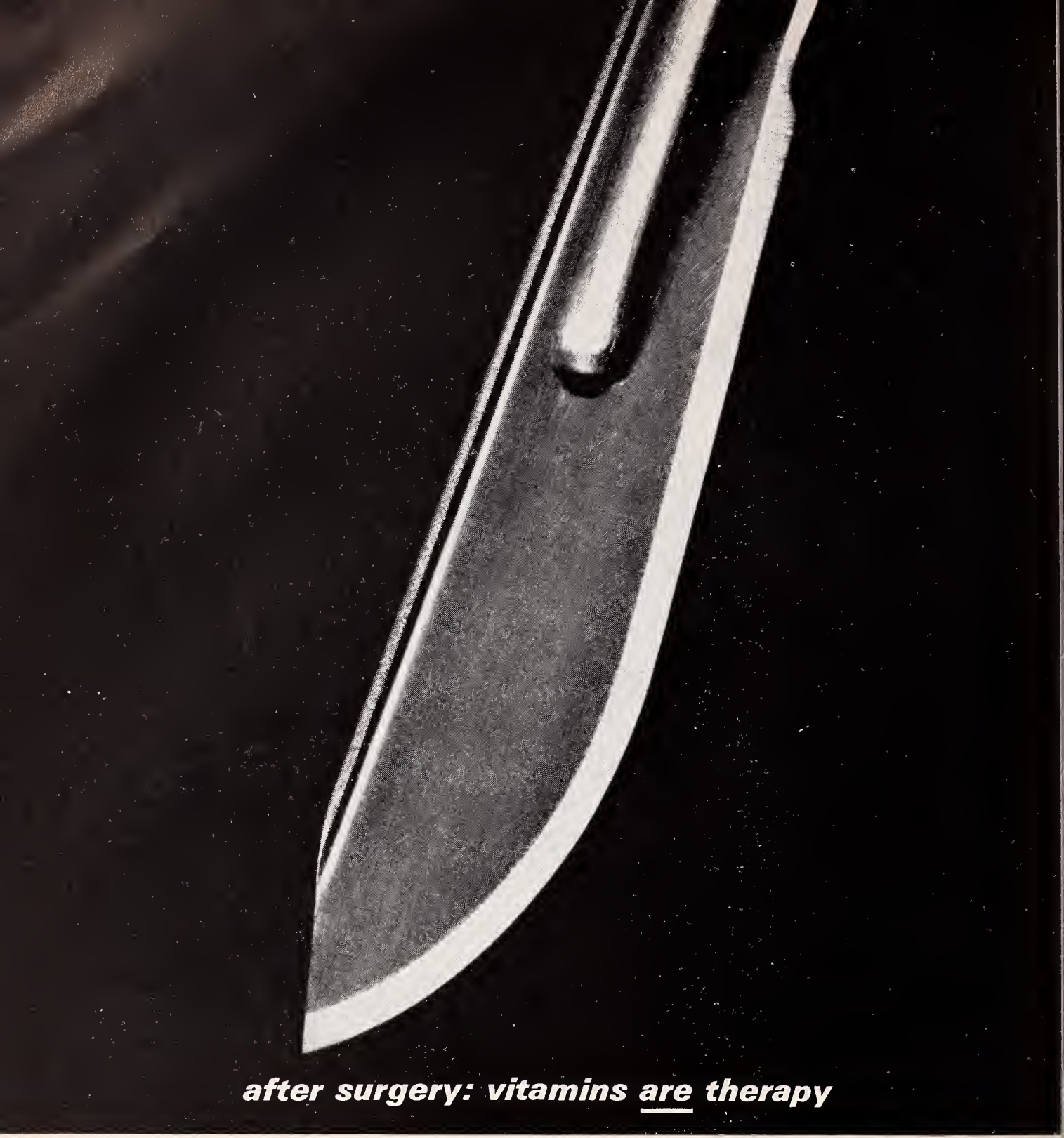
TESTS	BEFORE TRANSFUSION	AFTER TRANSFUSION
RBC TYPES		
PLASMA TYPES		
RARE ANTIBODIES		
RARE ANTIGENS		
SERUM HEMOGLOBIN stat. nor. 0-15 mg.%		
URINE HEMOGLOBIN		
SERUM BILIRUBIN after 6 hrs. nor.-1 mg.%		
COOMB'S ANTIGLOBULIN		
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*Abstract of reprint from J Amer Assn Med Record Librarians, October, 1961.

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6. Hospitals served by registered record librarians paid higher salaries, granted more vacation time, and provided less maintenance than those with less highly trained medical record personnel.
7. Group supervision manifests itself as an excellent method of improving the medical record services in participating hospitals. This program extends the services of medical record librarians to two or more hospitals which otherwise would not benefit from such professional service. As of June, 1961, 25 hospitals and 12 librarians were participating in the group supervision program. Approximately one-third of the administrators, mostly in small hospitals, expressed an interest in employing a group supervisor.
8. The overwhelming majority of medical record services did not have separate budgets, organization charts, policies relative to release of confidential information and/or procedure manuals to govern their operations.
9. The serial and unit systems of numbering were used equally by approximately two-thirds of the hospitals. About one-quarter used the serial-unit system while 14 hospitals filed medical records alphabetically.
10. In general, large hospitals with better qualified personnel performed more extensive procedures and used more technical functions in medical records than small hospitals. Coding and indexing were developed and employed more widely in hospitals served by medical record librarians than those with personnel trained on the job.
11. Medical record personnel in many hospitals stated there was a need for better fire protection and more storage space for records.

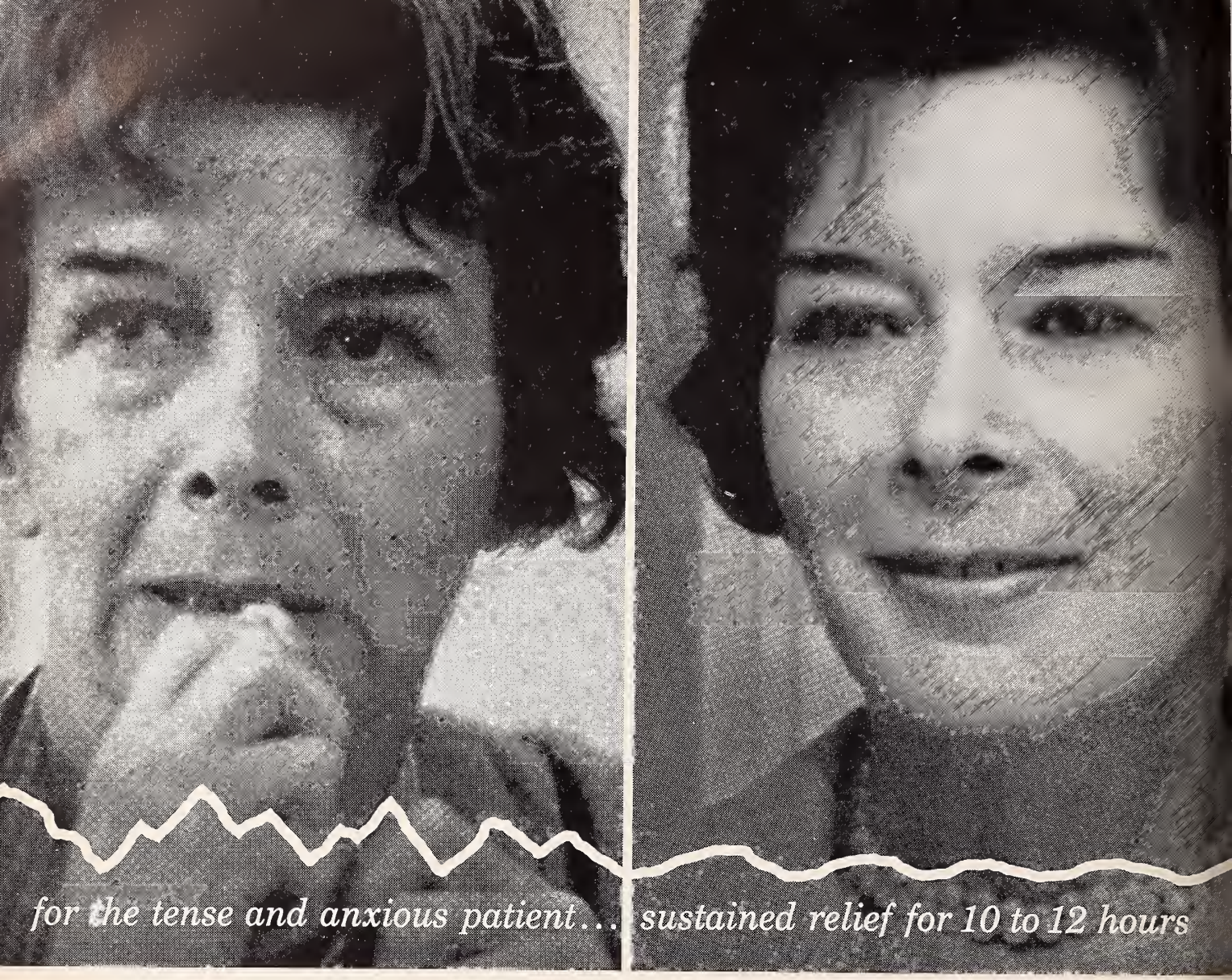
Recommendations

Review of the survey findings suggested a number of recommendations for developing and improving medical record services in Minnesota hospitals. The recommendations are as follows:

1. Shortage of professional personnel in medical record departments should be met by intensified recruitment of more students and by increase of training facilities.
2. Group supervision, whereby one registered record librarian is employed by more than one hospital to assume responsibility for the medical record department, should be applied much more extensively.
3. Consulting services by medical record librarians should be available and utilized by small hospitals until group supervision is instituted or the service of a full-time registered record librarian is obtained.
4. Basic training courses for non-registered medical record personnel and specialized in-service training for medical record librarians should be continued. Leadership in such training is most effective when provided through the medical record librarian groups.
5. Modern equipment, adequate storage space and necessary fire protection in medical record areas should be made available.
6. Good administrative practices including use of budgets, organization charts, policies regarding release of confidential information and procedure manuals lead to better operation of medical record departments.
7. Continuous study and reporting relative to recruitment, training and personnel policies of medical record personnel by all concerned will focus attention on needs and improve standards of the profession.
8. Preservation of medical records should be in accordance with the resolution adopted by the American Hospital Association in May, 1960, which considers 25 years as maximum time for the retention of medical records provided appropriate index or summary cards preserve basic information and any records required by law are kept indefinitely. (Minnesota Statutes 1961, Sections 145.30-145.33 provide that medical records must be preserved in the original for at least ten years and indefinitely thereafter in the original or by photographic means).

References

1. Mary M. Bujold, R.R.L., Helen L. Knudsen, M.D., M.P.H., William C. Harrison, M.D., M.P.H. and Bernard A. Wolcyn, Ph.D.: Medical Records in Minnesota Hospitals, *J Amer Asso Med Record Librarians*, October, 1961.



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Meetings And Announcements

OCTOBER

48th Annual Scientific Assembly of Interstate Postgraduate Medical Association, Palmer House, Chicago, October 21-24. Write: Interstate Postgraduate Medical Association, Box 1109, Madison, Wis.

American College of Physicians Postgraduate Courses: October 7-11: "Recent Advances in Basic Mechanisms" in Ann Arbor, Michigan, and October 21-25 "Common Problems in Endocrinology and Metabolism" in Milwaukee, Wisconsin. Write: College of Physicians, 4200 Pine Street, Philadelphia.

Mississippi Valley Thoracic Society Annual Meeting October 19-21, at Radisson Hotel in Minneapolis. Contact: Donna Carr, 1829 Portland Ave. in Minneapolis.

Second Annual Conference on Research in Medical Education, Sheraton-Chicago Hotel, October 30 in Chicago. Write: Paul Sanazaro, M.D., 2530 Ridge Avenue, Evanston, Ill.

American College of Gastroenterology annual postgraduate course, Shoreham Hotel, Washington, D. C. October 24-26. Write: College at 33 West 60th Street, New York.

American Cancer Society 1963 Scientific Session, Biltmore Hotel, New York, October 21-22. "Unusual Forms and Aspects of Cancer in Man." Contact: Society in New York.

St. Louis University School of Medicine annual alumni celebration at St. Louis University, October 17-22. Write: University.

12th Biennial Rocky Mounty Medical Conference, October 30-November 2 in Las Vegas, Nevada. Write: Thomas White, M.D., 3660 Baker Lane, Reno, Nevada.

American College of Chest Physicians, Clinical Cardiopulmonary Physiology Course, Chicago, October 21-25. Contact: Murray Kornfeld, 112 E. Chestnut Street, Chicago 11, Ill.

Crippled Children Services 1963 Fall Clinics:

Oct. 2 Willmar National Guard Armory
3 Alexandria Calvary Lutheran Church
8 Anoka Zion Lutheran Church
8-9 St. Cloud Bethlehem Lutheran Church
9 Winona St. Paul's Episcopal Parish House House
9 Crookston Bethesda Hospital
19 Wheaton E. J. Pearson Elementary School School
24 Austin Our Savior's Lutheran Church
24 Sandstone Pine County Memorial Hospital
Nov. 7 Mankato Bethlehem Lutheran Church
13 Detroit Lakes National Guard Armory
19 Marshall National Guard Armory
Dec. 5 Virginia Our Saviour's Lutheran Church

NOVEMBER

Hahnemann Medical College & Hospital Symposium "Aging of the Lung: Perspectives" — November 18-20, Sheraton Hotel, Philadelphia, Pa. Contact: Sage Rosen, Hahnemann Medical College, 230 No. Broad Street, Philadelphia.

57th Annual Meeting of the Southern Medical Association, November 18-21, New Orleans, La. Contact: The Association.

9th Congress of the Pan Pacific Surgical Association, November 5-13, in Honolulu, Hawaii. Also. First Pan-Pacific Mobile Educational Lecture Seminar, November 13-December 10 in New Zealand, Australia, Thailand, Philippines, Hong Kong and Japan. Write: F. J. Pinkerton, M.D., Suite 236, Alexander Young Building, Honolulu, Hawaii.

American Society of Cytology 11th Annual Meeting, The Neil House; Columbus, Ohio, November 7-9. Contact: Warren R. Lang, M.D., 1012 Walnut Street, Philadelphia, Pa.

American Society of Cytology Meeting, Penn Sheraton Hotel, Pittsburgh, Pa. November 12-14. Contact Warren R. Lang, M.D.; 1012 Walnut Street, Philadelphia, Pa.

Continued



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November 5-8 International Symposium on the Baboon and Its Use as an Experimental Animal, El Tropicano Hotel, San Antonio. Write: Richard Smith; Southwest Research Center, San Antonio, Texas.

American College of Physicians Sectional Meeting, November 21-23 in Detroit, Michigan, at the Sheraton-Cadillac Hotel. Contact: The College, 4200 Pine Street, Philadelphia.

ANNOUNCEMENTS

SAMA-Eaton Medical Art Award open to entries from photographers and illustrators. Applicants may be either medical students, interns or residents in the amateur class. Write: Student American Medical Association, 333 No. Michigan Avenue, Chicago.

Wyeth Laboratories is accepting applications for its 7th program of Pediatric Residency Fellowships. Eligible to apply are interns and physicians. Each fellowship provides $4800 for a two-year period. Direct inquiries: Dr. Philip Barba, University of Pennsylvania School of Medicine, Philadelphia.

American College of Chest Physicians offers three cash awards for the best essay prepared by undergraduate medical students on any phase of diagnosis and/or treatment of chest diseases. Write: Murray Kornfeld, 112 E. Chestnut Street, Chicago.

Scientific paper authors in the medical student and intern/resident groups are invited to participate in the SAMA-Mead Johnson Scientific Forum. The Forum grants awards to the top three papers submitted. Write: Student American Medical Association, 333 No. Michigan, Chicago.

University of Minnesota continuation medical courses for 1963-1964:

October 10-12	— Dermatology
October 21-23	— Pediatric Neurology
November 4-8	— Neuroradiology
November 20-22	— Ophthalmology
November 21-23	— Cardiovascular Diseases
November 21-23	— Orthopedic Surgery
December 6-7	— The Painful Back

The subject for the Caleb Fiske Prize of the Rhode Island Medical Society is: "Clinical Application of Newer Discoveries in Enzyme Chemistry." Dissertation must be typewritten, double spaced, and not exceed 10,000 words. Essays must be submitted by December 11. Write: Caleb Fiske Fund, 106 Francis Street, Providence, Rhode Island.



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Medical Economics

Antivivisectionist Legislative Aims Endanger Medical Research

The antivivisectionists "a noisy, dangerous, minority . . ." are on the move again. They are flooding our state and national lawmakers with propaganda in an effort to bring about legislation which would curb the use of animals for medical teaching and research.

All of medical research will suffer if any of the various antivivisectionist legislative proposals now before Congress are enacted into law.

The following information compiled from the National Society for Medical Research and from scientific and popular periodicals summarizes the background, the problem and the solution.

Background

J. D. Ratcliff, in the March 1961 issue of "The Reader's Digest," wrote: "A noisy, dangerous minority of perhaps 50,000 people threatens the health and welfare of 180 million Americans. These are the hard-core antivivisectionists who would ban or restrict laboratory experimentation with animals, thereby severely limiting nearly all medical research. Quiescent for a decade, the antivivisection movement is gaining new momentum.

"In principle, antivivisectionists oppose any animal experimentation — even the use of mice in diet studies. Total victory for them would mean that the surgical student would have to learn his skills on human beings, not animals. Research on drugs which are tested and standardized on animals would come to a halt . . . observed Dr. William Mayo, co-founder of the Mayo Clinic. 'To remove animals from experimental medicine would be a calamity not only to mankind but to lower animals themselves.' Animals have benefited quite as much from research as humans, with the conquest of such deadly maladies as hepatitis, cholera, and rabies.

"Such observable fact leaves most antivivisectionists unmoved. One extremist noted with remarkable candor, 'I am ready to see not only science but the whole human race go to destruction before I would resort to animal experimentation.'"

For some time there appeared to be a lull in the crusade of the antivivisectionists. In most cases their activities were confined to local campaigns designed to harass animal research. The greatest single accomplishment of this campaign was to make it more difficult to obtain the animals — often at a great increase in cost.

The new momentum mentioned by Ratcliff was heralded by the appearance in Congress in 1960 of the first bill to control animal experimentation. According to Ratcliff, back of this appearance were "the well-meaning but misguided efforts of the Animal Welfare Institute (AWI) and its associated lobbying organization, the Society for Animal Protective Legislation, to ensure the humane treatment of animals that are used in medical research.

"Christine Stevens, president of the AWI and wife of Roger L. Stevens, a real-estate broker and former finance chairman of the Democratic National Committee, has been the most ardent promoter of . . . the Cooper bill which was introduced in 1960 but failed to get out of committee in that session of Congress."

The Present Situation

A number of bills similar to the Cooper bill have since been introduced. Six bills dealing with Federal Control of the use of animals for experimental purposes have been introduced in the

Continued

88th Congress. The following is a summary of the six bills now in Congress:

S 533 by Senator Clark of Pennsylvania; S 1041 by Senator Randolph of West Virginia; HR 4856 by Representative Randall of Missouri; HR 4620 by Representative Ashley of Ohio; HR 4840 by Representative Fogerty of Rhode Island; and HR 4843 by Representative Roberts of Alabama.

What Can be Done Now?

The National Society for Medical Research and its National Council are now contemplating the drafting and introduction of a constructive measure calling for research in laboratory animal husbandry, training for laboratory animal care personnel, communication of new information and building of better animal care facilities.

Because the antivivisectionists are flooding the mail going to Congressmen and Senators urging repressive measures, one of the most telling things that we as physicians can do is to write to our representatives urging on them the *sane* viewpoint. Write to your Representative in care of House Office Building, Washington 25, D. C., or to your Senator in care of Senate Office Building, Washington 25, D. C.

Urge your congressman to oppose the restrictive bills now under consideration. Recommend that they consider constructive measures and ask others to join you in this vital effort.

Scientists Move to Preserve Use of Experimental Animals

The American scientific community moved ahead this summer on a wide front in a concerted effort to preserve continued freedom for researchers to make use of experimental animals to save human lives.

The nationwide effort was triggered by legislation now before Congress which many scientists feel would so restrict use of animals in research as to seriously hamper the fight against disease in this nation.

Scientists agree wholeheartedly with the avowed objectives of the legislation — to insure humane care of animals used for experimental purposes. But they are deeply concerned that such well-intentioned legislation would seriously impede research.

In the forefront of the campaign is a Task Force organized by the American Medical Association. It includes six major national organizations: American Medical Association, American Hospital Association, American Veterinary Medical Association, Association of American Medical Colleges, Association of State Universities and Land Grant Colleges, and National Society for Medical Research.

The Task Force already has held two meetings at the AMA's Chicago headquarters, beginning last May, and has scheduled a third session for mid-September. Under consideration are several positive programs in the area of animal experimentation, including a national convention of agencies having present or potential programs for survey or accreditation of laboratory animal care facilities.

The Task Force has adopted a five-point "Consensus" for its guidance:

* The use of animals in research is essential.
* For research to be effective, there must be good care and proper use of animals, and an extension of educational and research programs related thereto.
* Care of animals is generally good and can be improved where necessary by voluntary actions that entail setting of standards, surveys of facilities and care programs, and accreditation of laboratories utilizing animals.
* Provision for animal welfare is incorporated in all state and many local laws.
* Federal regulatory legislation in any form is not needed and would be harmful.

"Research scientists are fully convinced that optimal animal care is essential to the success of their experiments, and by reason of that conviction they are dissatisfied with anything less than optimal care," said Dr. Hugh H. Hussey, director of the AMA's Division of Scientific Activities and secretary of the Task Force.

"This has led to remarkable improvements in laboratory animal care — improvements in some instances resulting from cooperative efforts of research institutions and lay voluntary organizations interested in animal care. In other instances, improvements have been solely an institutional responsibility, but in all cases they have been made voluntarily," he said.

The National Research Council recently sponsored a survey of institutions utilizing animals in research. The Animal Care Panel last spring published a guide of standards for laboratory animal care, Dr. Hussey pointed out.

"Although both the survey and the guide received financial support from the federal government, they were purely voluntary undertakings of the scientific community. They were not required by laws or regulations," he said.

The survey and the guide already have led to still further improvements in laboratory animal care, and will lead to even more advances in the future, Dr. Hussey pointed out.

Dr. Charles L. Hudson, an AMA trustee and member of the Board's committee on scientific activities, is chairman of the Task Force. Other members are John M. Danielson, American Hospital Association; Dr. William R. Willard and Dr. Roger W. Mann, AMA; Dr. L. Meyer Jones, American Veterinary Medical Association; Dr. William N. Hubbard and Dr. Ward Darley, Association of American Medical Colleges; Dr. W. T. S. Thorp, Association of State Universities and Land Grant Colleges, and Dr. Hiram Essex and Ralph A. Rohweder, National Society for Medical Research.

In its June 8 issue, the Journal of the AMA commented editorially on the pending legislation restricting animal experimentation. The JAMA listed ten outstanding achievements in medicine in the past 40 years that were made possible because of use of experimental animals, especially dogs:

* The discovery of insulin by the orthopedic surgeon Banting and his medical student in training, Charles Best, in 1921, which depended entirely upon surgical studies performed upon dogs.
* The conclusive demonstration in 1927 by surgeons Blalock and Phemister that shock from hemorrhage, trauma, and burns could be prevented entirely or effectively treated by blood replacement.
* The identification by many investigators of the functions of endocrine glands — the pituitary, thyroid, parathyroids, adrenals, and gonads — by surgical extirpation of them and by the study of the physiological disturbances these operations produced.
* The extent to which the human body will tolerate subtotal surgical resections of certain organs for cancer and other diseases: the brain, the lung, the alimentary tract, the liver, the kidney, and bone.
* The demonstration, first on dogs subjected to operation by Dragstedt in 1943 that duodenal ulcer was in large measure under cephalic control and could be cured by division of the vagus nerves without resection of the stomach; and, in addition, his convincing demonstration, again from surgical experiments on dogs, that the antrum of the stomach played an important role in the genesis of gastric ulcer.
* The many developments by a number of surgeons within the past 15 years involving operations upon the open heart and the great vessels, and such ancillary advantages as are afforded by hypothermia, all first studied in the laboratory primarily with the use of dogs.
* The demonstration initially by surgical methods, of the benefits from the shielding of various hematopoietic organs which increases the tolerance to ionizing radiation by approximately 300 per cent over that of unprotected control animals.
* The localization of cerebral function by operations upon experimental animals and the applications derived therefrom to the diagnosis and treatment of neurological disorders by surgical oblation of portions of the brain to localize the sites of these disturbances in man to the daily benefits of patients everywhere.
* The burgeoning field of organ transplantation, which holds such high promise and already has limited clinical use and which was made possible by operative procedures on experimental vertebrate animals.
* Finally, the studies on the control of pain itself.

Many, though not all of these studies, have also been conducted under surgical conditions in the experimental animal. These were purposely designed to produce pain in order to test the effectiveness of drugs to alleviate pain.

End



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Sherry-flavored GEVRABON provides a palatable means of maintaining good nutritional levels of vitamins. Suggested serving: as an apéritif, pour GEVRABON over ice cubes and take before a meal. The comprehensive formula in a light liquid vehicle is particularly appropriate for geriatric patients.

Each fluid ounce (30 cc.) contains: Vitamin B_1, 5 mg.; Vitamin B_2, 2.5 mg.; Vitamin B_6, 1 mg.; Vitamin B_{12}, 1 mcgm.; Niacinamide, 50 mg.; Inositol, 100 mg.; Choline, 100 mg.; Pantothenic Acid, 10 mg.; Potassium, 10 mg.; Zinc, 2 mg.; Iodine, 0.1 mg.; Magnesium, 2 mg.; Manganese, 2 mg.; Calcium, 48 mg.; Phosphorus, 39 mg.; Iron, 20 mg.; Alcohol, 18%. DOSAGE: 2 tablespoonfuls (30 cc.) daily.



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6558-3

The Blue Shield

Faster Service

Blue Shield of Minnesota is now speeding claims and information with complex new teletype equipment.

The machinery links the Minnesota Plan with an automatic national communications center in Chicago which relays messages to the 70 other Blue Shield Plans throughout the nation.

The communications center also will speed the Minnesota Plan's clearing of medical and surgical claims involving employees covered under the Federal Employee Program. The Chicago center connects with an electronic computer in Washington, D.C., which maintains records on 3.5 million Federal Program employees. About 35,000 are covered in Minnesota by Blue Shield.

The new communications center, which is expected to save the Blue Plans about $2 million a year, supplants a manual system formerly operated in New York for the past six years. The center and equipment, including that used by Blue Shield of Minnesota, was designed and installed by Western Union.

The Minnesota teletype system has a sending speed of up to 100 words per minute, is open for messages 24 hours a day and receives about 3,500 messages a month.

Senior Citizens

Health coverage for the Senior Citizen, once considered a statistical improbability, is now one of the fastest moving policies in the insurance industry.

The health care protection coverage is being snapped up by over-65'ers at a rate double that of the population. Today, the number of Senior Citizens covered has almost tripled since 1953.

In Minnesota, Blue Shield has offered a program of surgical and medical care benefits to Senior Citizens since 1959. The cost, which has remained at $2.95 a month, is one of the least expensive Senior Citizen Blue Shield plans in the nation.

In the past two years, the Minnesota Plan's sales of Senior Citizen contracts have increased by nearly one-third. In addition, many more persons reaching age 65 and retiring from their employment are allowed to retain their Blue Shield protection without changing to the Senior Citizen Plan.

AMA President

The new president-elect of the American Medical Association, Dr. Norman A. Welch, has been deeply involved in Blue Shield work.

Dr. Welch is a former Board Chairman of the National Association of Blue Shield Plans and until recently President of Massachusetts Blue Shield. He is a specialist in internal medicine and has his own practice in Boston in addition to his work with Blue Shield.

In Brief

Of those national industries voted as "best managed," six out of 10 had selected Blue Shield for their medical-surgical coverage . . . Blue Shield of Minnesota's M-Series contracts, introduced to the general public for the first time this year, now account for more than 10 percent of the total Blue Shield enrollment . . . Nearly $1 billion was paid for benefits by all Blue Shield plans last year (that works out to be nearly $2½ million a day) . . . Blue Shield of Minnesota has 100 percent participation by physicians in 77 out of 87 counties in Minnesota. Excluding the Twin Cities and Rochester, all but 12 MD's in the state are Participating Physicians. Of the 1,674 physicians in the Twin Cities, 1,610 are participating in the Blue Shield program.

Medical Journal Advertising

"The Gallagher Report" covering business paper advertising indicates that The Journal of American Medical Association tops the list with 2,771 pages of advertising and revenue from it of $4,433,600. Of 80 business publications of all kinds, the JAMA was in first place. The Oil and Gas Journal was second and Medical Economics was in third place. In comparison with medical journals, other business papers are having a rough go.





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WINSTROL (stanozolol/Winthrop), a heterocyclic steroid, combines highest potency* with outstanding tolerance, stimulates appetite and promotes weight gain... restores a positive metabolic balance. It counteracts the catabolic effects of concomitant corticosteroid or ACTH therapy. WINSTROL (stanozolol/Winthrop) rebuilds body tissue while it builds strength, confidence and a sense of well-being in conditions associated with excess protein breakdown, insufficient protein intake and inadequate nitrogen and mineral retention.

Side Effects and Precautions: Prolonged administration can produce mild hirsutism, acne or voice change. In an occasional patient, edema has been observed and in young women the menstrual periods have been milder and shorter. These side effects are reversible, and patients receiving prolonged treatment should be examined and questioned periodically so that, should side effects appear, the dosage may be reduced or administration of the drug discontinued for a time.

In patients with impaired cardiac and renal function, there is the possibility of sodium and water retention. Liver function tests may reveal an increase in bromsulphalein retention, particularly in elderly patients. In such cases, therapy should be discontinued. Although it has been used in patients with cancer of the prostate, its mild androgenic activity is considered by some investigators to be a contraindication.

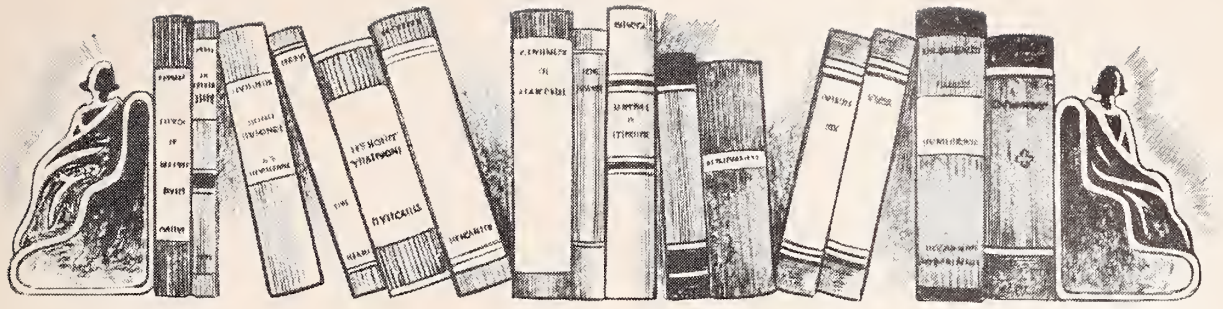
Dosage: Usual adult dose, 1 tablet t.i.d. before or with meals; young women, 1 tablet b.i.d.; children (school age): up to 1 tablet t.i.d.; children (preschool age): ½ tablet b.i.d. Available as scored tablets of 2 mg. in bottles of 100. For best results, administer with a high protein diet.

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Book Reviews

THE SPECIFICITY OF SEROLOGICAL REACTIONS — Carl Landsteiner, M.D. Dover Publications, Inc., New York, 1962. 330 pages. Paperbound, $2.00.

This new Dover edition represents an unabridged republication of Landsteiner's second English edition, published in 1945. To that edition has been added a bibliography of all of Dr. Landsteiner's works, 346 scientific papers published between 1892 and 1943.

This republication of a classic monograph is set in clear, easily readable type and despite its low cost, appears to be well bound. Merrill W. Chase, in a preface to the 1962 Dover edition, comments that while we have gained additional knowledge since Landsteiner's pioneer work on the nature of haptens and antibodies, students of immunology and related disciplines will be rewarded by reviewing many of the original concepts proposed by this brilliant investigator and his collaborators.

F. W. Hoffbauer, M.D.
Minneapolis, Minn.

MANAGEMENT OF ANXIETY FOR THE GENERAL PRACTITIONER — Nathan K. Rickles, Editor. Charles V. Thomas, Springfield, 1963. 108 pages

In this small book, Rickles has included papers presented at a Symposium on Anxiety for General Practitioners. Papers by Mirsky, Berblinger, Jensen, Dickel, Kline, and Ralphman are included. Each psychiatrist presented a brief account of the problem of anxiety with particular reference to areas with which they were most familiar. The two papers on the pharmaceutical treatment of anxiety and the potentialities and limitations of pharmacotherapy are quite informative. Advice based on experience is welcome when one views the bewildering array of drugs that are currently brought to the attention of doctors in practice.

F. W. Hoffbauer, M.D.
Minneapolis, Minn.

PROTEIN METABOLISM. INFLUENCE OF GROWTH HORMONE, ANABOLIC STEROIDS AND NUTRITION IN HEALTH AND DISEASE — An International Symposium (Ciba) F. Gross, Editor. Springer Verlag, 1962, Berlin. 521 pages

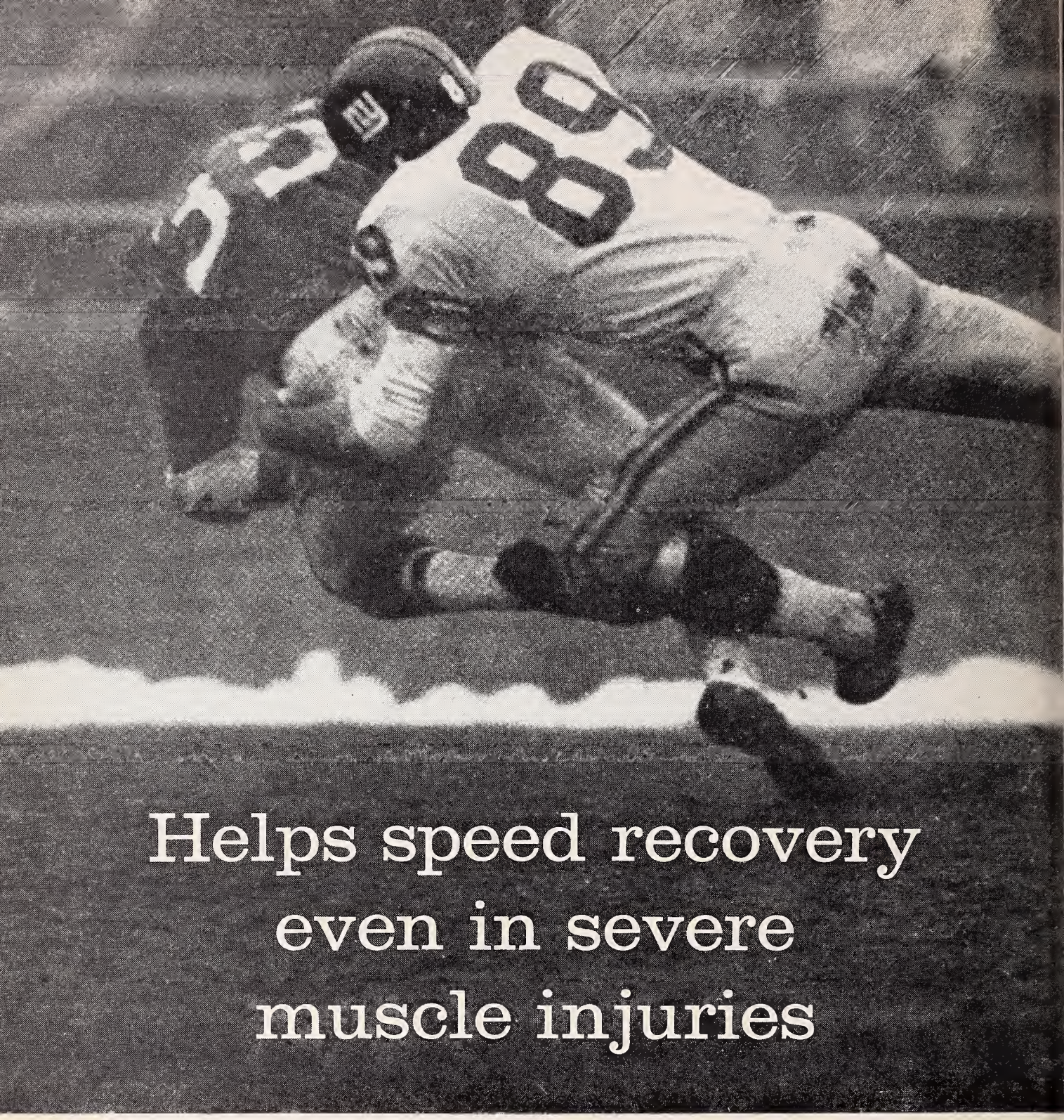
The editor, F. Gross, of Basel, has performed a creditable service in compiling the presentations and the discussion of a Ciba sponsored symposium held in Leyden in June, 1962. The participants represent authoritative students of protein metabolism on a world wide scale. Arias of New York, Kinney of Boston, Rundles of Durham, and Wilson of Dallas were the contributors from the United States. The individual papers are presented as separate chapters that are well edited and illustrated. The discussions are particularly informative.

The presentation by Subramaniam of Madras on human liver cirrhosis secondary to nutritional deficiency was a disappointment to this reviewer. The paper was quite general and relatively uncritical. Nearly all of the other papers were much better documented and contained extensive bibliographies. Each paper is well summarized. This monograph can be recommended as an authoritative source for data on the influence of growth hormone and anabolic steroids on protein metabolism.

F. W. Hoffbauer, M.D.
Minneapolis, Minn.

Prolonging Life

A few people die young at 95 or 100. But a larger number become senile wrecks at 21. The growing cult of prolonging life, no matter how parasitic or obstructionist, is terrifying. Too many people are boasting about "hitting" 70 or "hitting" 80 who never hit anything else in their life, except perhaps a golf ball or a bottle. — Simeon Stylites, Christian Century



Helps speed recovery even in severe muscle injuries

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As Conant demonstrated in a study of 106 patients with musculoskeletal injuries, 88% of the patients treated with 'Soma' (carisoprodol) achieved good to excellent results. *(Clinical Medicine,* March, 1962.)

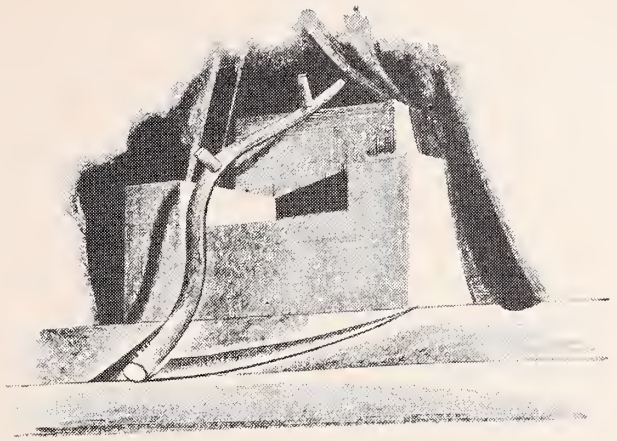
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USUAL DOSAGE: ONE 350 MG. TABLET Q.I.D.

The muscle relaxant with
an independent pain-relieving action

Soma®
carisoprodol

Wallace Laboratories, Cranbury, New Jersey



In Memoriam

PAUL S. HAGEN

Dr. Paul S. Hagen, 49, his wife and a son, John, were killed instantly in an automobile collision, September 2nd. Dr. Hagen was a professor of medicine at the University of Minnesota and head of the hematology department and in charge of training medical students at the Veterans' Hospital.

He was born at Crookston, Minnesota, and received his degree in medicine from the University of Minnesota. Dr. Hagen was a member of the Ramsey County Medical Society, the Minnesota State Medical Association, the American Medical Association, International Society of Hematology, Central Clinical Research Club, American Federation for Clinical Research, Society for Experimental Biology and Medicine, Central Society for Clinical Research, Hematology Club (Chicago) and the American Society of Hematology.

He is survived by a son, Paul.

LEONARD GERVAIS FLANAGAN

Dr. Leonard G. Flanagan, 59, eye-ear-nose and throat specialist in Austin, died July 5 after a short illness. He was born at Wykoff, Minnesota and received his degree in medicine from the University of Minnesota.

He was a member of the Mower County Medical Society, the Minnesota State Medical Association and the American Medical Association.

Dr. Flanagan is survived by his wife and two sons.

WALTER H. VALENTINE

Dr. Walter H. Valentine, 88, Tracy physician, died September 3. He was born at Cannon Falls, Minnesota and received his degree in medicine from the University of Minnesota.

He was a Fellow of the American College of Surgeons, past president of the Southern Minnesota Medical Association, member of the Lyon-Lincoln County Medical Society, 50 Club and life member of the Minnesota State Medical Association, and a member of the American Medical Association.

Dr. Valentine was a past president of the Minnesota Sanitary Conference and past president of the Lyon County Chapter of the Minnesota Public Health Association.

He is survived by his wife and two daughters.

CHARLES H. MEAD

Dr. Charles H. Mead, 58, Duluth physician and former instructor at the University of Minnesota, died September 10. He was born in Sweetgrass, Montana, and received his degree in medicine from the University of Minnesota.

Dr. Mead was a member of the Ionic Masonic Lodge, Phi Beta Phi medical fraternity, Alpha Omega Alpha honorary medical society, Sigma Xi honorary scientific society, St. Louis County Medical Society, Minnesota State Medical Association, American Medical Association, Interurban Academy of Medicine, Minnesota Surgical Society, Central Surgical Association, Duluth Surgical Society, American Board of Surgery, and a staff member of St. Luke's, St. Mary's and Miller Memorial hospitals in Duluth.

His wife and two sons survive him.

THEODORE SATERSMOEN

Dr. Theodore Satersmoen, 82, Pelican Rapids physician, died September 6. He was born near Dawson, Minnesota, and received his degree in medicine from the University of Minnesota.

Dr. Satersmoen served in several capacities in the city government of Pelican Rapids and was mayor for several years. He was a Past Master of the Masonic Lodge, member of the Park Region Medical Society, 50 Club and life member of the Minnesota State Medical Association, and a member of the American Medical Association.

He is survived by his wife, a daughter, and his son, Dr. Theodore Satersmoen of Birmingham, Michigan.

Classified

Replies to advertisements with key numbers should be mailed in care of MINNESOTA MEDICINE, *496 Lowry Medical Arts Bldg., St. Paul 2, Minn. 55102*

Classified advertising rates are twenty (20) cents a word; minimum monthly charge $5.00; key number, fifty (50) cents additional. Remittance should accompany order.

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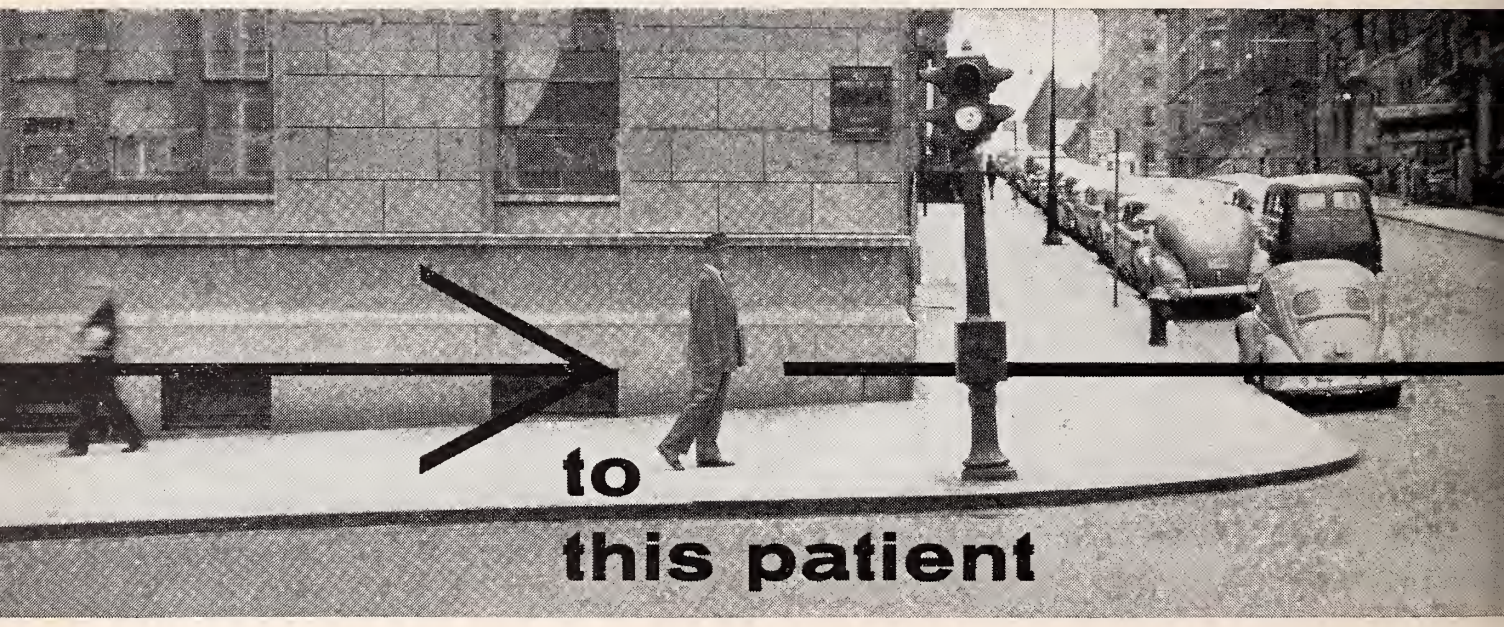
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ASSOCIATE wanted for large general practice. 1700 county seat town in rich Red River Valley. 38-bed community hospital. Early partnership. Contact: Peter Foderick, M.D.; Hallock, Minnesota.

ITEMS FOR SALE by Nightengale Nursing Home Association, Waconia, Minnesota. WH 5-2244 — formerly the Waconia Community Hospital:

1 American Sterilizer Co. Utensil sterilizer Electria
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1 Fairbanks-Morris Baby scale White Enamel
7 Bassinets with mattresses All steel painted white
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1 Scrub sink Foot operated (Hot & cold mixer) 34½ X 34 with all fittings 2 years old
1 Crane scrub sink Foot operated 24 X 36 2 years old
1 Crane scrub sink Foot operated 24 X 22 with fittings 2 years old
1 Operay Multibeam ceiling operating Room Light
1 Puritan O_2 Regulator
1 Continental Air O_2 Regulator
3 Ohio Chemical O_2 Regulators
1 SKLAR Tompkins Rotary Compressor Suction Type T Portable
2 Gomco Birdcage Suction
1 Gomco Portable alternating suction with stand
1 Continental Air O_2 Machine Model H-D Serial 2000
1 Heidbrinks Kiet-o-meter Gas Machine with bags
1 Scanlon-Morris HO_2 Still Stainless steel Electric
1 Scanlon-Morris Cylindrical Autoclave Electria 16-24
1 Heidbrink O_2 Machine Model 25
1 Wolf Xray Viewer Wall model
1 Bendick EKG Machine with jack for phonotrace connection
1 Jewett Blood Bank
1 Bovie Electrosurgical Unit Model AG

Write: Nightengale Nursing Home Association; Waconia, Minnesota.



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TWO DOCTORS WANTED. Here's what awaits two General Practitioners who locate in Brillion, Wisconsin, this fall: A newly constructed, fully equipped $90,000 clinic, as well as two brand new residences; a community of 1800 — located in the "milk vein of the world" — only minutes from the Fox River Valley, Lake Michigan and Green Bay. Brillion has three major industries, whose payroll is in excess of $4,000,000 a year. The needs of these firms alone will easily support two doctors. Earning potential, living and working conditions are above average with access to fishing, hunting and golfing. Write or phone Oliver C. Wordell, c/o Brillion Iron Works, Inc., Brillion, Wisconsin.

RESIDENCIES in Physical Medical and Rehabilitation offer ideal opportunity in a growing field to the general practitioner who has decided to specialize. Comprehensive training utilizing Mayo Clinic facilities and faculty, at $3600 to $8000 stipend. Attractive community with excellent school system and cultural advantages. Contact: E. C. Elkins, M.D.; Mayo Foundation; Rochester, Minnesota.

INTERNIST available for locum tenens for 1-2 month starting November 1st. Also some general medicine experience. Twin City area preferred. Write: MINNESOTA MEDICINE; Box 246; 496 Lowry Medical Arts Building; St. Paul, Minnesota 55102.

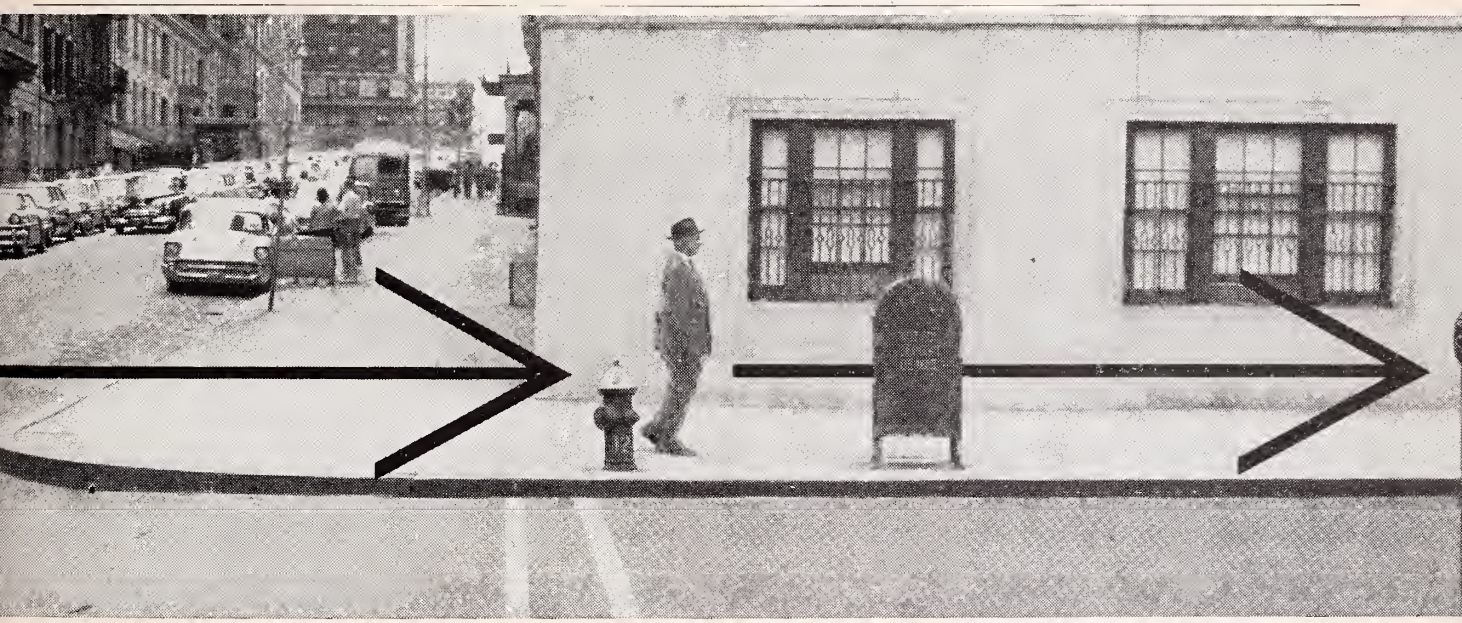
PLAN for Psychiatric Residency for July, 1964? NIMH General Practitioner program: $12,000 yearly, partially tax free. Three-year approved, balanced didactic and clinical training. In Michigan's vacationland. Dr. Curtis W. Page, Training Director, Traverse City State Hospital, Traverse City, Mich.

WANTED — General Practitioner for medical center in growing Minneapolis suburb as partner, associate or assistant. Call MIdway 8-8618 or TUxedo 8-5112, or write to: Burnsville Medical Center, Savage, Minn.

WANTED: General practitioner by established three-man group in own building, full equipped. Southwestern Minnesota — county seat — population 3,500. New hospital — fine churches — good schools, public and parochial. Golf club — grass greens. Hunting and fishing. Starting salary with opportunity for partnership. No initial investment necessary. Write: Box 199, care of MINNESOTA MEDICINE, St. Paul. 55102

GENERAL PRACTITIONER for well-established high grade general practice in St. Paul. Excellent hospital facilities. Good earnings. Share calls. Salary to start leading to partnership. Write Box 231; MINNESOTA MEDICINE; 496 Lowry Medical Arts Building; St. Paul. 55102

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SUMMARY: Indicated whenever an increase in blood supply is desirable in circulatory insufficiencies of the extremities, brain, eye and ear. Use with caution in the presence of a recent myocardial lesion, severe angina pectoris and thyrotoxicosis. Contraindicated in acute myocardial infarction.

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OPHTHALMOLOGIST — board certified or eligible. Well established medical group Mid-western city, population 30,000. Beginning salary then partnership; no investment; new clinic building; excellent school, hospital and recreational facilities. Write: MINNESOTA MEDICINE, Box 244; 496 Lowry Medical Arts Building, St. Paul, 55102.

BEAUTIFUL retirement home in Taylors Falls on 10 lots overlooking the St. Croix River and Valley. Secluded but close to shopping. Must sacrifice as I have returned to residency. Home value $39,000. Will sell for $27,000. Call 825-4536 or Write: J. C. Belshe, M.D.; 5025 Garfield Ave. South, Minneapolis 19, Minnesota.

IDEAL LOCATION available in Northwest Minneapolis area, custom built suites, all new building. Space available for two pediatricians, two surgeons, two internists, two general practitioners. One of the fastest growing suburbs. Contact: A. G. Erickson, KE 3-7332 or 561-3590.

WANTED: Board certified or eligible internist for large, active practice in Minneapolis. Partner is retiring about December and am anxious for associate as soon as possible. Partnership in mind. Contact: Jesse J. Barron, M.D.; 1127 Medical Arts Building; Minneapolis 2, Minnesota. FEderal 2-8259.

WANTED: General Practitioner to join Central Minnesota six man group. Excellent new 130 bed hospital with open staff. New offices, 25,000 drawing area, salary open, excellent schools, golfing, hunting, fishing, swimming, etc. Write: MINNESOTA MEDICINE, Box 243, 496 Lowry Medical Arts Bldg., St. Paul. 55102

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WANTED — RADIOLOGIST: Certified or board eligible, trained in diagnosis, therapy, special techniques, and use of isotopes; to serve unusually attractive Midwest community. Trading area of 40,000 served by 25 doctors. Modern 150 bed hospital under construction soon. Progressive professional environment. Exceptional financial opportunity. Write: MINNESOTA MEDICINE, Box 242, 496 Lowry Medical Arts Building, St. Paul, Minn. 55102

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Important
news in
cardiac therapy

Two new clinical reports document successful long-term treatment of ischemic heart disease with Persantin,® brand of dipyridamole

See next 3 pages

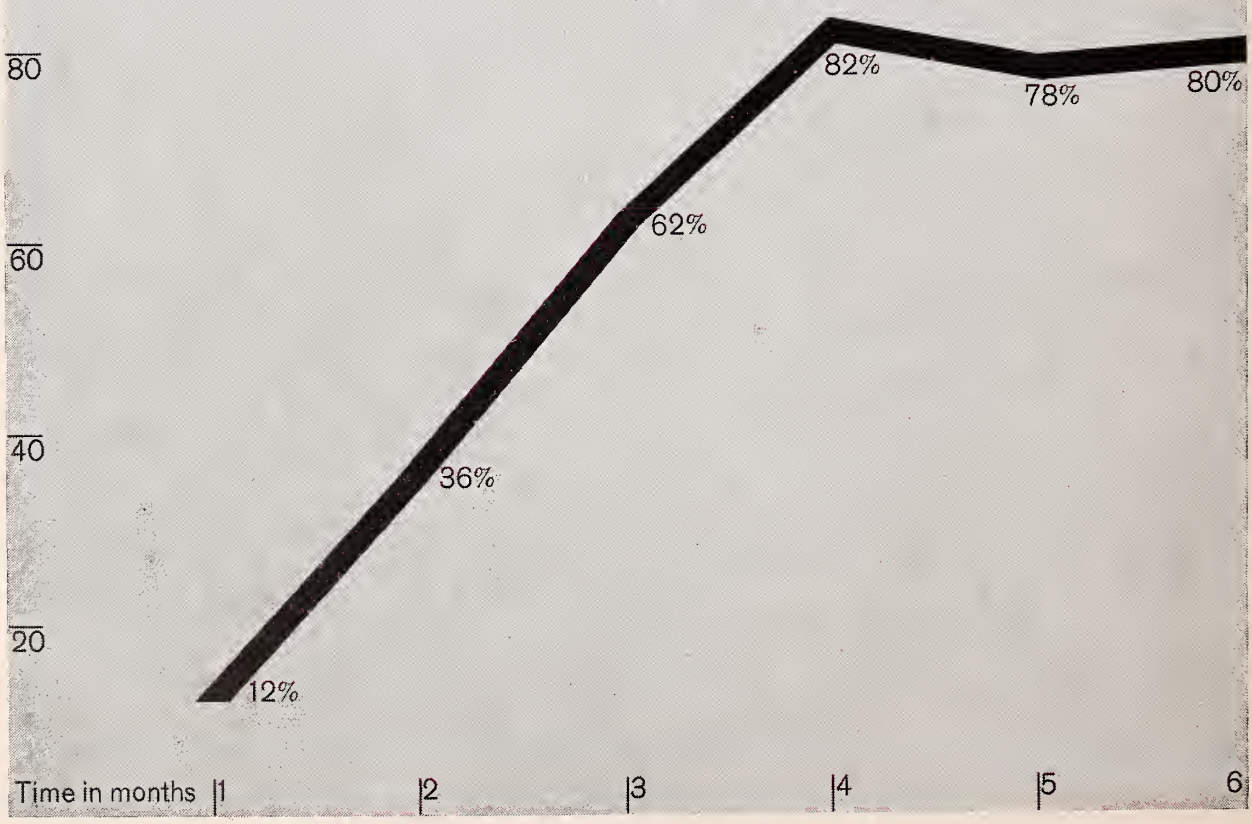
Study 1.
Griep,A.H.: Long-term Therapy of Ischemic Heart Disease With Oral Dipyridamole:
A Report of Fifty Cases. Angiology 14:484, 1963.

Persantin,® brand of dipyridamole, 25 mg. t.i.d. or q.i.d.,was administered continuously for 6 months to 50 patients with well authenticated ischemic heart disease with angina pectoris and ECG abnormalities. Results were evaluated on a monthly basis; final evaluation after 6 months showed that 56% of patients were completely free of, or had markedly fewer, anginal attacks, with normal or improved ECG findings; an additional 24% experienced fewer, milder attacks and improved work capacity.

Persantin®
brand of dipyridamole

"...long-term oral therapy with dipyridamole was of benefit in 80 per cent of the patients... relief [of angina] came slowly and was usually maximal after three to six months of continuous treatment"

Steady, month-by-month improvement with Persantin,® brand of dipyridamole, refutes possibility of "placebo response", reflects gradual improvement in underlying pathology.



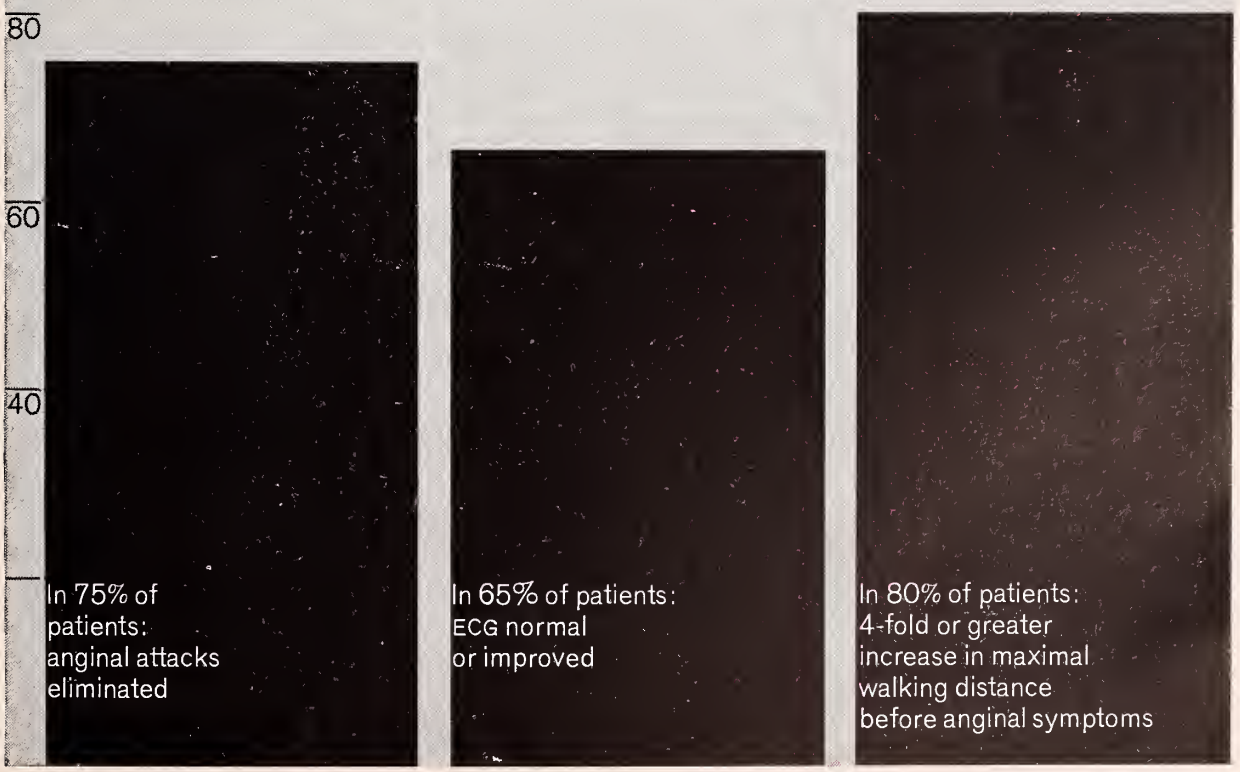
Study 2.
Wirecki,M.: Dipyridamole (Persantin®): Evaluation of Long-Term Therapy in Angina Pectoris. Current Therapeutic Research 5:472, 1963.

In 40 ambulatory patients with myocardial ischemia, angina pectoris, and abnormal ECG findings, Persantin,® brand of dipyridamole, 25 mg. t.i.d., was administered continuously for 3 months.

Results after 3 months of therapy revealed a satisfactory clinical response in 32 patients. The accompanying diagram illustrates the specific criteria of improvement in patients with excellent or good response.

Of 40 patients, 32 showed "...reduction or abolition of acute anginal attacks...complete or almost complete disappearance of ECG abnormalities... marked increase" in walking distance without anginal symptoms

Response after 3 months of continuous therapy with Persantin,® brand of dipyridamole



How Persantin,® brand of dipyridamole, provides long-term clinical benefits reported on previous pages

1. By increasing energy yield
of the hypoxic myocardial cell, by direct action upon the sarcosomes (heart mitochondria).[1-5]

2. By improving collateral coronary circulation.
Prolonged oral administration of dipyridamole to animals with experimentally induced stenosis of a major coronary artery resulted in superior development of collateral coronary anastomoses and longer survival compared with controls.[6-9]

When given for prolonged periods and in adequate dosage, dipyridamole improves the coronary flow deficit of the ischemic myocardium while supporting cardiac metabolism during the period of repair. Clinically, this is manifested as steady improvement – anginal attacks diminish in frequency and intensity, as do other manifestations of insufficiency (dyspnea, fatigue, and, in many instances, abnormal electrocardiographic findings).

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References: 1.Kunz,W.;Schmid,W.,and Siess,M.: Arzneimittel-Forsch.12:1098,1962. 2.Siess,M.: Arzneimittel-Forsch.12:683,1962. 3.Laudahn,G.: Experientia 17:415,1961. 4.Lamprecht,W.: 27th Congress of the German Society for Circulation Research,Bad Nauheim,1961. 5.Hockerts,T.,and Bögelmann,G.: Arzneimittel-Forsch.9:47,1959. 6.Vineberg,A.M.,et al.: Canad.M.A.J.87:336,1962. 7.Chari,S.R.et al.: Presented at the International Congress of Chest Physicians,New Delhi,1963. 8.Neuhaus,G.,et al.: Presented at the Fourth World Congress of Cardiology,Mexico City,1962. 9.Asada, S.,et al.: Japanese Circ.J.27:849,1962.

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Physician's Diary

The following doctors received grants from the Life Insurance Medical Fund: **Ivan D. Frantz, Jr., Ralph T. Holman, C. Walton Lillehei,** all of the University of Minnesota.

* * *

Dr. Howard F. Polley, Mayo Clinic, was recently elected first vice president and president-elect of the American Rheumatism Association at its meeting in Atlantic City.

* * *

New Locations: **Dr. C. Carlyle Clawson** became affiliated with the Montevideo Clinic . . . **Dr. David Martin** recently joined the Community Clinic in Wabasha . . . **Dr. Paul H. Hedenstrom** will join the staff of the Medical Center in Little Falls and **Dr. O. E. Wiger** became associated with **Dr. D. R. Seifert** in the Broadway Clinic in Little Falls . . . **Dr. Warren L. Kleinsasser** joined **Doctors Field, Hunter** and **Moller** in Farmington . . . **Dr. William P. Miller** moved from Montevideo to become associated with **Doctors Watson, Sturgis** and **Brandt** in Edina . . . **Dr. C. O. Thompson** of Hendricks purchased the Hendricks Clinic recently from **Dr P. E. Hermanson** . . . **Dr. Leroy Mueller** has joined **Dr. C. O. Thompson** in Hendricks . . . **Dr. Paul G. Belau** of Blue Earth has been appointed to the staff of the Mayo Clinic as a consultant in ophthalmology . . . **Dr. David Drill** joined the Drill Clinic where he is associated with **Dr. H. E. Drill** and **Dr. J. D. Lyon** . . . **Dr. Carsten H. Seecamp** of Golden Valley and **Dr. John Lee Sander** who recently completed a surgical residency at Miller Hospital of St. Paul have joined the Cambridge Clinic in Cambridge . . . **Dr. Paul J. Keith** of Milaca plans to open up a new clinic there . . . **Dr. R. W. Gustafson** of Spring Valley has recently been associated with the Granite Medical Center at Granite Falls whose members are: **Drs. Paul G. Schmidt, Carl L. Lundell** and **Olin M. Odland.**

* * *

Dr. Earl Dagg, radiologist at the Northwestern Hospital in Thief River Falls was a recent speaker at the Rotary Club Meeting in Thief River Falls.

* * *

Dr. Gershom J. Thompson, Sr. of the Mayo Clinic was recently elected president of the Mayo Foundation Chapter of the Sigma Xi Society. **Dr. Edward H. Rynearson** was elected vice president and **Dr. Eunice Flock** was re-elected secretary-treasurer.

* * *

Dr. Arnold J. Kremen, Minneapolis surgeon, was guest speaker at the Range Medical Society's meeting recently. His topic was "Treatment of Malignancies of the Head and Neck."

* * *

Dr. William H. Remine, Mayo Clinic, was named vice president of the Minnesota Surgical Society at its recent meeting. **Dr. Frederick Owens Jr.** of St. Paul was elected president and **Dr. Josiah Fuller** of Duluth was named president-elect.

* * *

Dr. Gordon M. Martin of the Mayo Clinic has been named secretary of the Section on Physical Medicine and Rehabilitation of the American Medical Association for a three year term.

* * *

Drs. William H. Remine, Philip E. Bernatz and Edward H. Soule of the Mayo Clinic presented a program at the national assembly of the Colombian College of Surgeons at Bogata.

* * *

Dr. Alvin S. Zelickson of Minneapolis was recently awarded top honors for his "Electron Microscope Study of Fibrogenesis" by the American Dermatological Association.

* * *

The Minnesota Power & Light Free Enterprise Award was given to **Dr. Otto F. Ringle** of Silver Bay at its annual meeting.

* * *

The Minnesota Heart Association named **Doctors Douglas A. Nelson, Bernard Pollara, Homer D. Venters, Jr.** and **Jorge J. Yunis,** all of the University of Minnesota and **Dr. Spencer W. Payne** of the Mayo Clinic as recipients of grants to conduct studies of disease of the heart and blood vessels.

* * *

Drs. Orest Filipovich and **George Garber** of the Memorial Hospital in Winona were recently certified as diplomats of the American Board of Surgery.


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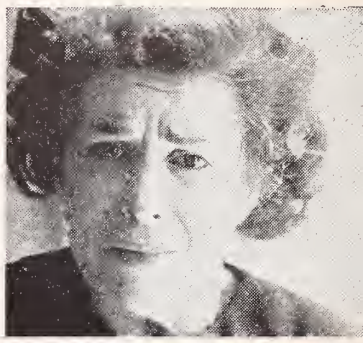
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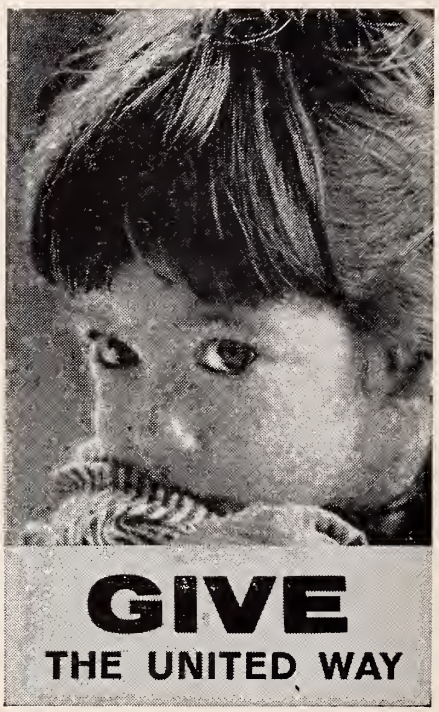
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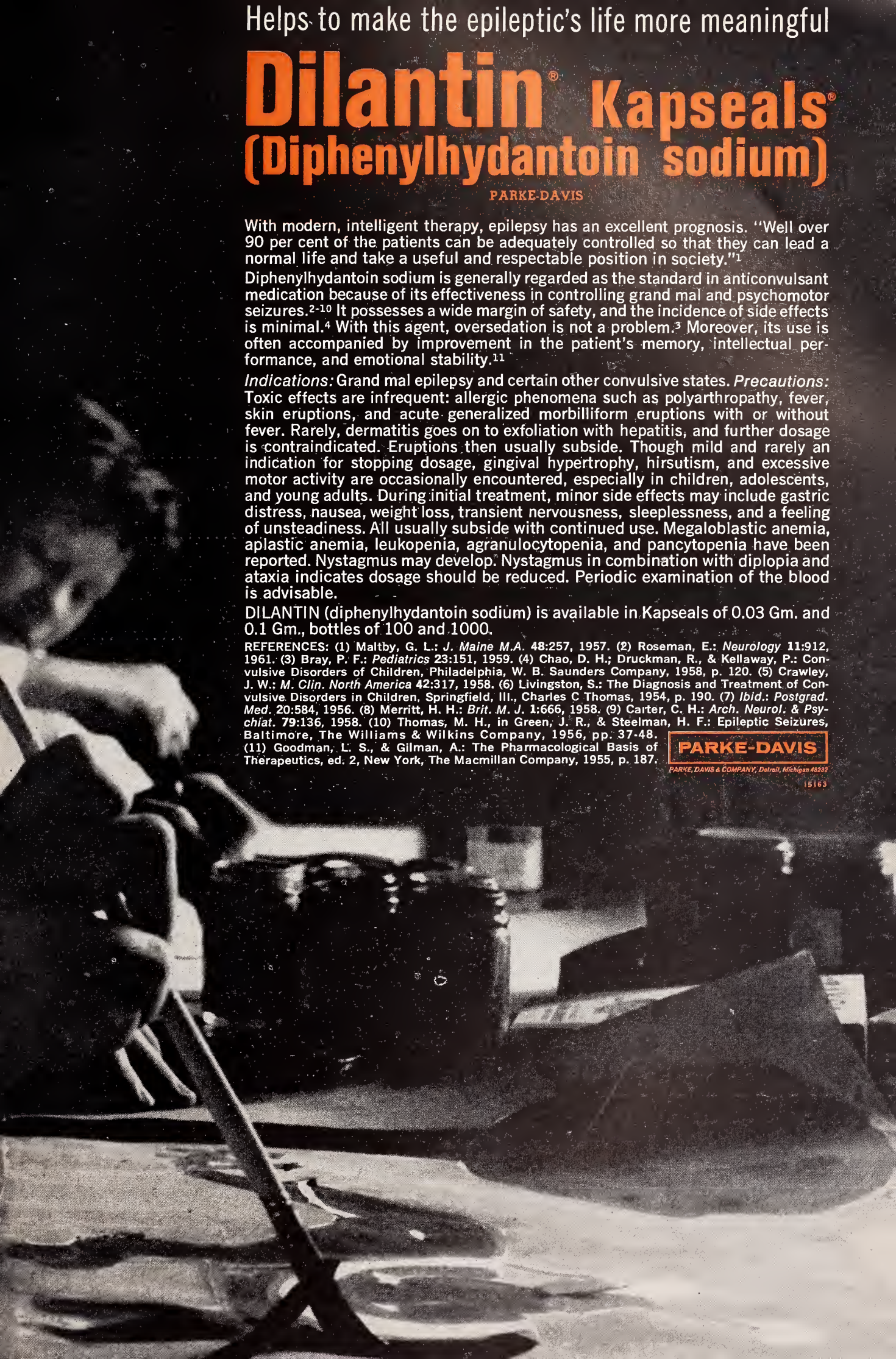
MINNESOTA STATE MEDICAL ASSOCIATION



NOVEMBER, 1963

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REFERENCES: (1) Maltby, G. L.: *J. Maine M.A.* 48:257, 1957. (2) Roseman, E.: *Neurology* 11:912, 1961. (3) Bray, P. F.: *Pediatrics* 23:151, 1959. (4) Chao, D. H.; Druckman, R., & Kellaway, P.: Convulsive Disorders of Children, Philadelphia, W. B. Saunders Company, 1958, p. 120. (5) Crawley, J. W.: *M. Clin. North America* 42:317, 1958. (6) Livingston, S.: The Diagnosis and Treatment of Convulsive Disorders in Children, Springfield, Ill., Charles C Thomas, 1954, p. 190. (7) *Ibid.*: *Postgrad. Med.* 20:584, 1956. (8) Merritt, H. H.: *Brit. M. J.* 1:666, 1958. (9) Carter, C. H.: *Arch. Neurol. & Psychiat.* 79:136, 1958. (10) Thomas, M. H., in Green, J. R., & Steelman, H. F.: Epileptic Seizures, Baltimore, The Williams & Wilkins Company, 1956, pp. 37-48. (11) Goodman, L. S., & Gilman, A.: The Pharmacological Basis of Therapeutics, ed. 2, New York, The Macmillan Company, 1955, p. 187.

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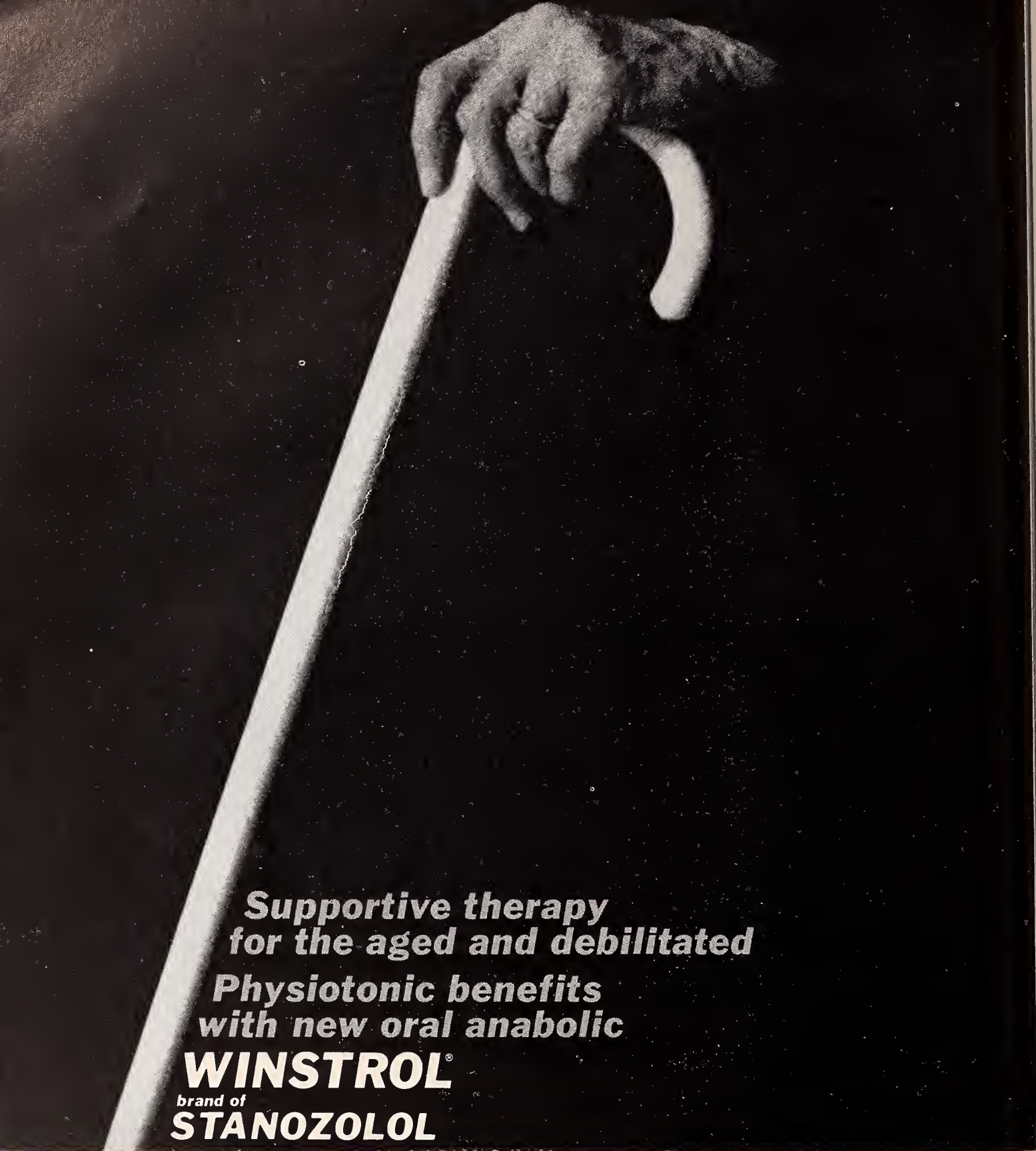
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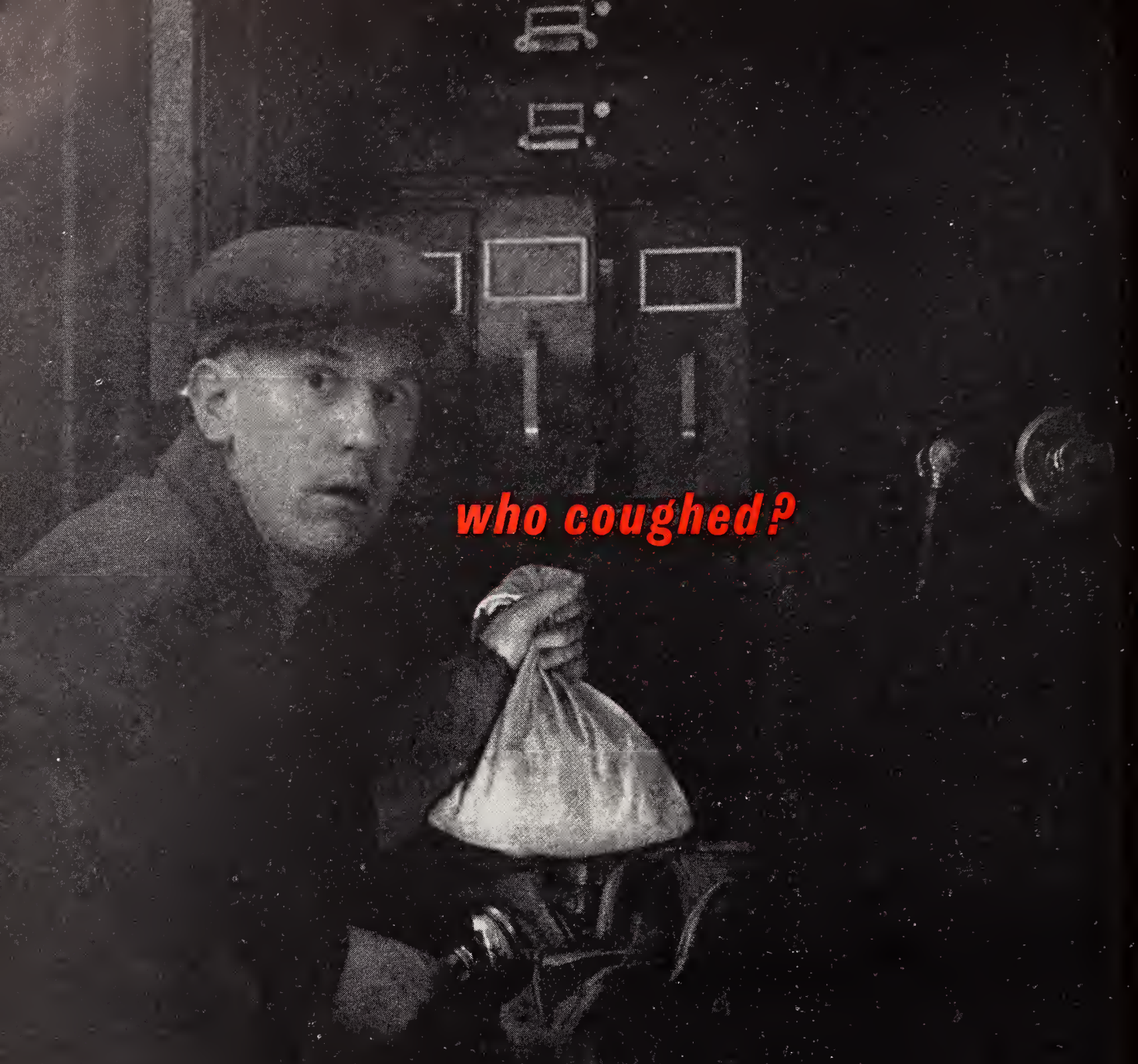
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President's Letter

Some weeks ago I talked with Dr. John E. Harris concerning the pre-school survey of vision and hearing which has been conducted for several years by the State Medical Association. At that time I asked Dr. Harris to send me some data which might be incorporated in a future President's Page. This material has been received and is so complete that I feel it should be published as submitted by Dr. Harris.

"For the past few years the Minnesota State Medical Association through its committees on Ophthalmology and Conservation of Hearing has sponsored a survey of the vision and hearing of four year olds in the state. This screening is carried out by volunteers who have been properly trained under medical guidance to adequately screen the vision and hearing of four year old children.

"The program functions as follows. Certain members of the above-named committees are incorporated as a Board to promote the 'Pre School Medical Survey of Vision and Hearing.' The executive secretary of this Board is Mrs. Grace Stoltze who gives freely of her own time. Mrs. Stoltze runs the state office of the survey and does all the leg work for the program including raising of funds to maintain the state office. At the community level sponsors are sought among the various service clubs and auxiliaries. The community by and large takes care of its own expenses. There has been no difficulty in obtaining interested mothers and others in a community to carry out the variety of tasks required. The screeners themselves are trained under the guidance of experienced personnel. The training utilizes in part a motion picture film which was made under the direction of the Board with funds kindly provided by the Louis W. and Maud Hill Family Foundation. All printed material has been carefully prepared and edited by the Board of physicians in charge.

"The Survey is growing rapidly. In 1961 a total of 488 four year olds were screened in four communities and in 1962 the number increased to 5,121 four year olds screened in a total of 17 communities. This is a continuing program, done annually, usually in the fall. On the average more than 80% of the four year olds in a community are screened. Of these around 12% have been found by the screeners to have either visual or a hearing defect which previously had been undetected. An individual found to have a defect is referred to his family physician. You will be interested to know that the medical reports received from physicians who have examined the referred children show approximately 80% of the referrals to be necessary, an exceedingly good figure.

"The individual members of the Minnesota State Medical Association can help in this program as follows:

1. Support the Pre School Medical Survey of Vision and Hearing and the volunteer screeners. Rest assured that the question of whether volunteer screeners can do an adequate job has been thoroughly tested medically. Use of special equipment other than that provided the screeners is unnecessary and indeed leads to over referrals.
2. You can help institute a Survey in your community generally by interesting one of the service clubs in your area. A promotional film on kinescope is available to local medical societies and other interested groups. Information concerning the film

(Continued on Page 1135)



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Diabetes as a Public Health Problem in 1963

GLEN W. MC DONALD, M.D.*
Washington, D. C.

We can prevent loss of productive capacity in many diabetics if the disease is discovered early. Each doctor's office can easily serve as a "detection center" if simple urine sugar and blood sugar testing is done. Each citizen deserves the benefit of early "case finding" and early treatment.

With the threat of communicable disease substantially diminished during the last few years, the growing problem throughout the nation is that of chronic illness. In fact, our future standards of health will depend largely upon what we do about these insidious diseases.

Traditionally, public health has been considered responsible for detection and control of diseases that pose a threat to our society — those diseases which can only be controlled through the cooperation of all health disciplines and through organized application of knowledge and techniques on a community-, State, nation-, and eventually world-wide basis.

According to our best estimates, some 3 million persons in the United States have diabetes. Half of them do not know it. Furthermore, statistics show that diabetes is the eighth leading cause of death and the third leading cause of blindness.[1] In addition, amputation, cardiovascular and renal breakdown add significantly to the ranks of our disabled.

If left undiscovered and untreated, over a million diabetics may eventually lose their capacity to function fully and completely within society's framework.

As is true of many chronic diseases, primary prevention is still an unfulfilled objective. Secondary prevention, halting the progress of the disease and preventing its complications, will help the patient avoid serious disability and premature death.

Early Recognition

Frequently, in those most susceptible — the overweight and the over 40 — diabetes does not reveal itself in early recognizable symptoms. If

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there are early symptoms, they may be blamed on the physical pressures of aging.

Casefinding procedures are relatively simple. A variety of tests is available for this purpose. For the most part, the private physician is aware of these diagnostic tools. By using them, he can be of immeasurable help in bringing under control the patients with pre- and early diabetes. According to the late Dr. Elliot P. Joslin, "If each doctor would examine the urine of ten additional patients, and better still, secure analyses of blood, consider how many new cases of diabetes would be found."[2]

However, screening by the private physician is limited because many diabetics do not present themselves for tests. For these individuals, there is little hope for diagnosis except through the application of screening techniques on a community-wide basis. Then, suspected cases can be referred to the practicing physician for diagnosis and treatment.

Public Health Control Program

In organizing a diabetes control program in a community, the local public health department can be a major asset. They need not necessarily assume leadership; their aim should be to organize the total resources of the community to attack the problem. A better use will be made of local talent and a wider degree of active participation on the part of the whole community will be achieved by assigning certain responsibilities to those elements that can best handle the job. Public health could be that coordinator.

Patient Education

After diagnosis by the private physician, there is still the problem of patient education. Few physicians can spend the 20 or 30 hours necessary to transform the newly-diagnosed patient into a willing and cooperative partner in a lifelong fight against his disease. In the light of burgeoning demand for medical services, it appears impossible for most physicians to spend that much time educating a single patient.

Thus limited, the modern practitioner must delegate some of his responsibility for patient education to other professionals within the community. The local public health agency offers an excellent solution to this problem. Its professional personnel are trained to provide the educational and supportive services so essential to the treatment program.

Because many physicians feel that they need assistance in solving the twin problems of casefinding and education, a pattern of public health activities has been evolving throughout the country.

Screening Programs

Currently, there is some form of screening being done in about 35 of the 50 states. Individual programs vary widely from one place to another. Each program differs in methods and in goals. These differences are due to the varying extent of local resources and the way the planning committee decides to use them. Furthermore, the ability to pinpoint high yield groups has led to the use of different approaches.

Information on Relatives

In Florida, the major emphasis has been on treating relatives of diabetics. Through a unique program of insulin distribution, indigent diabetics can be easily located. In casefinding programs, all persons with diabetes are interviewed to obtain information on relatives. By screening these relatives, the yield was more than three times that normally found.

Multiphasic Program

The State of Oklahoma has been concentrating on a multiphasic program.[3] Health education has been adopted as their primary reason for screening. Their approach is backed by the feeling that the most effective way to educate the public about a disease is to give them a specific test. Initially, Oklahoma started out with mass x-ray screening for tuberculosis. When the incidence of this disease declined, x-ray screening for heart disease was begun. Tests for obesity, diabetes, anemia, pulmonary insufficiency, and cervical carcinoma were added.

In Virginia, a continuing blood sugar program is centered around three areas of detection.[4] First, patients from various clinics in local health departments are offered a test for diabetes. Since these are normally older persons, the yield is somewhat higher. Their second approach is to offer blood sugar tests on a mass basis at health fairs and in community health screening programs. Finally, Virginia has been

encouraging private physicians to test patients in their own offices.

These three examples of local detection programs serve to illustrate different approaches to a common goal. In each instance, many unwitting victims of diabetes were discovered and advised to place themselves under medical care.

Patient Education

After detection, there is the problem of patient education. The physician has the essential job of supervision, but it is the patient himself who must take the major responsibility for control. Patient education must serve to prepare them for this responsibility.

Many diabetes specialists and clinics treating diabetics make arrangements for special instruction through individual consultation or formal classes. However, this approach will not reach the vast number of diabetics who are under the care of the private physician.

Here the public health department can serve the physician and the community. This has been demonstrated by the enthusiasm and interest shown in such classes at Chapel Hill, North Carolina, Buffalo, New York, and North Little Rock, Arkansas.

The problem of patient education is one that the community can solve for itself. Through the local medical society, health and welfare agencies, diabetes association, Visiting Nurse Association, and dietetic association, the physician has a direct line for patient referral to nurses, nutritionists, dietetians, social workers, and others who are professionally prepared to assist with patient education.

Instructions may be given individually, to a group, or to the patient and his family. Group instruction has many advantages, both to the patient and to the instructor. In such classes, patients can share their experiences with those who have similar problems. However, education of the patient should include all forms of instruction.

In a continuing effort to explore different methods of teaching, the Diabetes and Arthritis Program, Division of Chronic Diseases, Public Health Service, is studying the use of programed instruction and teaching devices for diabetes patient and professional education. Preliminary field evaluation has clearly indicated the general usefulness of the programed curricula.[5] At present, further investigation is under way. It is hoped that in this fashion a new method of presenting much of the factual material connected with the disease will be available to those professionals interested in education.

Once a community has decided to set up diabetes screening and patient education programs, the local health department can be a significant force behind community action. This agency should be able to speed up the discovery of diabetes and help educate patients after detection.

Certainly this is not too much to ask. For diabetes poses a threat to our society. It weakens our nation by depriving us of some of our most valuable and productive citizens. What better reason could there be for each community to turn to recognized techniques which are available to help them in their fight against this damaging disease?

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You never know what you can do without until you try. — Franklin Adams

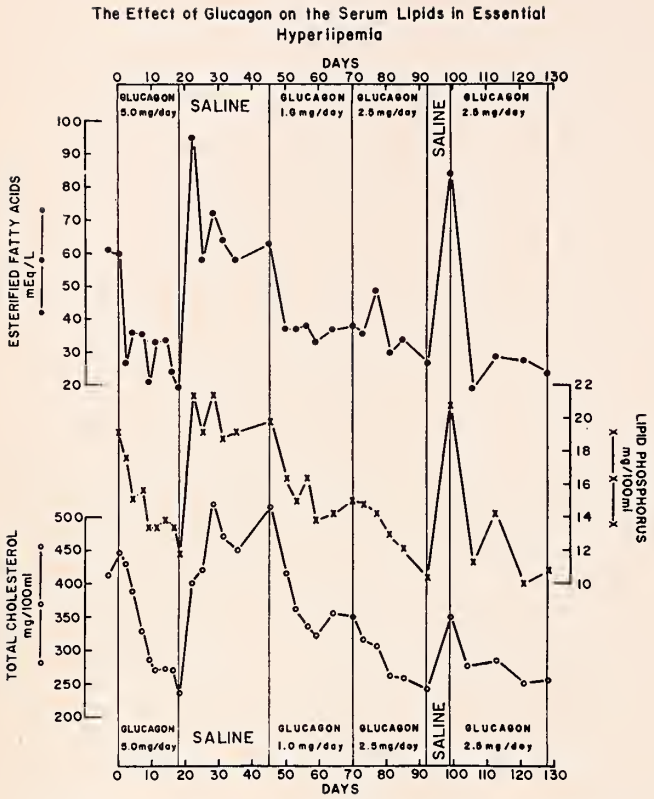


Fig. 1 — Effect of glucagon on the blood lipids in essential hyperlipemia. From Amatuzio, Grande and Wada: Effect of glucagon on the serum lipids in essential hyperlipemia and hypercholesterolemia. Metabolism 11:1240, 1962. Reproduced by kind permission of the editors of Metabolism.

Essential Hyperlipemia

GLUCAGON, a hyperglycemic pancreatic hormone, is considered to be produced by the alpha cells of the islets of Langerhans of the pancreas in men and animals.[1,2,3] Physiologic studies have shown that the removal of the duck or chicken pancreas, which contains a large proportion of alpha cells, will cause a severe hypoglycemia, convulsions and death.[4,5] In the dog the removal of the tail and the body of the pancreas that contain most of the alpha cells, while leaving the uncinate process which is largely devoid of alpha cells, causes a sustained hyperlipemia.[6]

Using different assay procedures, a glucagon-like fraction was demonstrated in the rabbit plasma[7] and in the peripheral blood of man and dog.[8] The average concentration of glucagon in the blood of the pancreaticoduodenal vein of 48 fasting dogs was found to correspond to 543 micromicrogram equivalents per ml.[9]

The administration of glucagon** was shown to cause a decrease of the serum lipids in the dog[10] and the rat.[11] We have recently reported that daily parenteral glucagon decreases to normal limits the serum lipids of subjects with essential hyperlipemia.[12]

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*From the Jay Phillips Research Laboratory, Mount Sinai Hospital and the Departments of Medicine and Physiological Hygiene, University of Minnesota, Minneapolis. Supported by The John A. Hartford Foundation, New York.

**The crystalline glucagon used in this study was kindly supplied by Dr. W. R. Kirtley from the Lilly Research Laboratories, Eli Lilly and Company, Indianapolis, Indiana.

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The Effect of Glucagon

Management of Hyperlipemia

The present report is intended as an evaluation of the clinical use of glucagon in the management of essential hyperlipemia.

None of the six subjects was hospitalized during the study. No patient had diabetes mellitus, renal or hepatic disease, or hypothyroidism. All had had a coronary occlusion or peripheral vascular disease at least one year prior to the study. They were all engaged in their normal activities and ate their usual diet. The average daily diet consumed was estimated to contain from 2200 to 2400 calories and 100 to 125 gm. of protein. Fat intake was usually 35 percent of the total calories and it was not limited to either vegetable or animal fat. The patients either maintained or gained weight during the study.

Case Report

All subjects with essential hyperlipemia had a fall in their plasma lipids while receiving parenteral glucagon with a marked rise in the plasma-free fatty acids. The effect of glucagon on the serum lipids is best illustrated in the following two case studies. The methods of lipid analysis have been described elsewhere.[12]

Case 1.

A fifty-year-old woman was hospitalized four years ago because of substernal chest pain of three hours duration and shortness of breath. The physical examination revealed a woman in acute distress complaining of chest pain. The examination was nonrevealing except

for a blood pressure of 100 systolic and 68 diastolic. The pulse was 112 beats per minute and the temperature 97.8° F.

The urinalysis gave negative tests for protein and glucose; the sediment contained 8 to 10 white cells and an occasional hyaline cast per highpowered field. The hemoglobin was 12.6 gm. per 100 ml.; the white cell count was 14,500, with 87 percent neutrophils and 13 percent lymphocytes; and the platelets were normal. The fasting serum was very lipemic and the serum cholesterol was 476 mgm. per 100 ml. The urea nitrogen was 18 mgm., the bilirubin 1.1 mgm., and the total protein 6.5 gm./100 ml. (albumin 4.2 gm., and globulin 2.3 gm.). The rapid intravenous glucose tolerance test was 74 mgm. fasting and 106 mgm. per 100 ml. at 68 minutes after the injection of 25 gm. of dextrose (as 30 percent solution) within four minutes. The protein-bound iodine was 7.4 micrograms per 100 ml.

The image of the cardiac contour in an X-ray film of the chest was normal. The electrocardiogram revealed an acute anterio-septal myocardial infarction.

The patient's hospital course was uneventful, but it was not possible to clear the fasting lipemia on a diet containing less than 20 percent fat calories.

Two and one-half years after the coronary occlusion the patient was placed on a 2200 calorie diet that contained 35 percent fat calories and one injection glucagon at bedtime. Figure 1 summarizes the changes of the serum cholesterol, lipid phosphorus and esterified fatty acids over a period of 128 days. The injection of 5 mgm. of glucagon per day, early in the morning, caused a prompt decrease of the lipid fractions to normal levels. At day 18 a saline solution was substituted for glucagon without informing the subject of the change. This was immediately followed by a marked increase of all the fasting serum lipids. On day 45, and also unknown to the patient, glucagon was given again at a dose of 1.0 mgm. per day. A fall of the lipid fractions occurred and the decrease was further enhanced when the dose of glucagon was increased to 2.5 mgm. per day.

The patient had no adverse effects or symptoms while receiving glucagon. In fact she reported a feeling of well-being during the period of glucagon injection, and complained again of generalized aches when saline was substituted for glucagon, without informing her of the substitution. The fasting blood glucose was determined at periodic intervals and always remained within the normal limits. These results demonstrated the effect of glucagon on the serum lipids of a patient with essential hyperlipemia. The patient was her own control while saline was substituted for glucagon.

Case 2.

A thirty-eight-year-old male clerk, with known hyperlipemia for eight years, was hospitalized because of aching of the arms and legs for the previous five years. He also complained of a tightness of the legs and numbness on walking rapidly, symptoms that had been present for the preceding one and one-half years and that were relieved with rest. There was no family history of hyperlipemia.

Nothing abnormal was found in the physical examination, except for a bilateral decrease of the pulsation of the popliteal and posterior tibial arteries. There were no apparent pulsations of either of the dorsalis pedis arteries.

Temperature was 99.2° F., pulse 68, and respirations 16 per minute. Blood pressure was 136 systolic and 68 diastolic.

Urine tests for protein and glucose were negative; the sediment contained 10 to 12 white cells and an occasional hyaline cell per high-powered field. The hemoglobin was 14.9 gm. per 100 ml., and the white cell count 12,200, with 62 percent neutrophils, 37 percent lymphocytes and three percent eosinophils. The fasting serum was noted to be very lipemic, and the serum cholesterol was 912 mgm. per 100 ml. The urea nitrogen was 18 mgm., the total bilirubin 1.2 mgm., the protein-bound iodine of 6.2 gamma, and the total protein of 7.9 gm. (the albumin 4.4 gm. and the globulin 3.5 gm.) per 100 ml. The bromsufalein retention was 4.2 percent at 45 minutes. The rapid intravenous glucose tolerance test was 78 mgm., fasting, and 96 mgm. per 100 ml. at 68 minutes after 25 grams of dextrose (30 percent solution) given intravenously within four minutes.

There was an essentially normal image in the X-ray film of the chest. A barium enema and an upper gastrointestinal examination revealed no abnormality.

The patient was placed on a 2800 calorie diet for two weeks with the diet containing 20 percent fat calories. There was no apparent change in the blood lipids during this period. He was then given 1 mgm. of glucagon parenterally one hour after each of the three meals. The lipid response is illustrated in Table 1.

TABLE 1
Effect of glucagon (1 mgm after each meal) on the serum lipids.

Time Days	Treatment	Cholesterol mgm/100 ml	Esterified Fatty Acids in mEq/L
1	Diet	912	192
7	Diet	928	—
14	Diet	890	194
15	3 mgm of glucagon per day	768	162
17	(1.0 mgm subcut. after each meal)	512	92
19		329	—
21		298	—
31		268	12

The patient showed a rapid decrease in serum cholesterol and esterified fatty acids with clearing of the lipemic serum when 1 mgm. of glucagon was given daily one hour after each meal. He reported a general sense of well-being

with the disappearance of the aching of the arms and legs. His exercise tolerance has apparently improved and he is now able to work a complete eight-hour day. At the present he has been continuously on glucagon therapy for three months.

Discussion

Glucagon, a polypeptide, was first crystallized by Staub et al[13] and has been studied mainly in regard to its hyperglycemic effect. This hormone stimulates the liver phosphorylase activity, causing a decrease in liver glycogen and an increase of the blood glucose.[14] Studies on the effects of glucagon on lipid metabolism have revealed that it causes the release of free fatty acids and glycerol from adipose tissue[15] and inhibits alimentary lipemia in man.[16] A reduction of the blood lipids after parenteral glucagon in man has been reported by us in essential hyperlipemia[12] as well as in complicated disease states with a sustained hyperlipemia[17] (von Gierke's disease, Niemann-Pick's disease, and relapsing pancreatitis).

Since the metabolic defect in essential hyperlipemia is thought to consist in a decrease of the rate of removal of triglycerides from the circulation,[18] the present observations could be interpreted as indicating that glucagon stimulates the removal of plasma triglycerides.

In the two cases reported here the clearing of the lipemia caused by the administration of glucagon was associated with the disappearance of some complaints, like the generalized muscular aches. Observations in man[19,20] and in animals[21] indicate that hyperlipemia produces a decrease in available oxygen in the tissues. It is then possible that a relationship exists between the above complaints and the changes of oxygen availability in the tissues.

Summary

It is important to lower the elevated blood lipids to normal levels in patients with essential hyperlipemia, as such subjects develop severe generalized arteriosclerosis.

It is recommended that the subject first be put on a low fat diet, and if clearing of the lipemia fails, one mgm. of glucagon then be injected one hour after each meal.

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13–21 will appear in the reprints or can be obtained from the author.

SAEGESSER'S SIGN

There is a point of violent pain produced by pressure between the sternomastoid and scalenius medius on the left side. This is called the splenic point and when positive is indicative of a ruptured spleen. It is said to be positive even in cases of intracapsular hemorrhage in the spleen.

Deer Hunting and the Heart

(A Prelminary Report)

Arthur C. Kerkhof, M.D., Director
Charles P. Kolars, M.D., Associate Director
The Cardiac Work Evaluation Unit
of the Minnesota Heart Association

CARDIAC DEATHS during deer hunting season occur three times as frequently as "accidental" deaths. It is known that activities involved in deer hunting often demand high levels of energy expenditure. These levels of energy expenditure may triple or quadruple the ordinary levels of energy expenditure to which the individual is subjected during the rest of the year. In an attempt to assess the response of the cardiovascular system to activities involving a very high level of energy expenditure, males over the age of 40 who were considered by a physician to have no evidence of heart disease were subjected to a series of tests designed to simulate the energy cost of some of the activities encountered in deer hunting.

A cardiovascular history and physical examination was done on each patient and a 12 lead electrocardiogram taken. No auscultatory cardiac abnormalities were noted and no significant elevation of blood pressure was encountered in the group tested. Occasionally premature beats were noted; one resting electrocardiogram revealed nonspecific T-wave changes; and another revealed a "S-type" right bundle branch block. Following this resting cardiac evaluation, a telemetering* device was connected to the individual with the chest electrode in the V4 position. In testing individuals for post-exercise electrocardiographic changes, it has been our experience that this lead most consistently demonstrates abnormalities that occur.

Each individual was then subjected to three tests designed to measure increasing work loads. The electrocardiogram was monitored continuously throughout each test. Thirty-seven men of average age 48 and ranging from 40 to 65, were tested in two groups on different days, one group exercising at a temperature of 94.5° F. and the other at 65° F. The first test consisted of 40 trips over the standard two-step Master apparatus in three minutes. All individuals in the group passed this test without significant electrocardiographic changes.

Following a five-minute rest period, a second test was given which consisted of walking through loose, coarse gravel for a period of three minutes during which the individual climbed grades of varying degree to a maximum height of about eight feet. Again there was no significant electrocardiographic change despite an increased work load as evidenced by an increased heart rate. No one failed to complete the two-step test or the three-minute walk through gravel.

After a five-minute rest period a third and final test was done. This consisted of dragging a 100 lb. sack of sand through loose gravel over a grade variation of no more than three feet for a period of three minutes. Thirty-three men of

TABLE I
Cardiac Rates During Increasing Exertion

Average		Resting		Masters Test		Gravel Walk		Gravel Drag	
Age	Temperature	Mean	Range	Mean	Range	Mean	Range	Mean	Range
48	94.5°F.	76	58-100	130	88-150	141	88-160	165	107-188
48	65°F.	73	54- 90	123	100-140	128	100-160	161	140-185

*Telemetric equipment was supplied and serviced by Medtronic, Inc., Minneapolis, Minnesota.

(Continued on Page 1126)

Necrobiosis Lipoidica Diabeticorum

Its Relationship to Other Complications of Diabetes

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NECROBIOSIS LIPOIDICA diabeticorum is a cutaneous lesion characterized by the formation of granulomas and the deposition of lipid in the skin. Usually the condition is regarded as an accompaniment of diabetes. Although it may precede the recognition of diabetes, it is often thought of as a degenerative phenomenon. Some workers have suggested that necrobiosis lipoidica diabeticorum be considered a "forme fruste" of diabetes mellitus.[1] Although such a concept might explain some aspects of the syndrome, a more logical explanation is constituted by necrobiosis sine diabetes, a state found in the study of Rollins and one of us (Winkelmann).[2] It was observed that the clinical features of both lesions are identical, but microscopically the presence of sarcoidlike granulomas distinguishes the nondiabetic type of lesion.

Until now the relationship of this cutaneous reaction to degenerative changes in other tissues of diabetic patients has received scant attention. A review of the literature discloses little information correlating necrobiosis lipoidica diabeticorum with the major chronic complications of diabetes mellitus.[2-6] In 1959 the impression existed that it was not commonly associated with intercapillary glomerulosclerosis.[3] Goldberg and Rosenberg[7] reported a case in which a 32-year-old man had had diabetes for 22 years, necrobiosis lipoidica diabeticorum for 16 years, and azotemia with marked albuminuria. This congeries was believed to represent a "hitherto not reported combination."[7]

Our report deals with the relationship of necrobiosis lipoidica diabeticorum to other diabetic complications as revealed by a study of the records of the Mayo Clinic.

Method

All cases in which the diagnosis of necrobiosis lipoidica diabeticorum had been made at the

Mayo Clinic from 1936 through 1962 were reviewed. To estimate the frequency of occurrence of the condition in the diabetic population, the rates of occurrence were calculated in diabetic records for the years 1959, 1960 and 1961.

To study the significance of necrobiosis lipoidica diabeticorum in a group of diabetic persons in which a known incidence of degenerative complications would be expected,[3,4] we also reviewed a select group of patients who had had necrobiotic lesions and diabetes mellitus for 15 years or longer.

"Nondiabetic" persons were judged to be such in the light of existing criteria at the time they were studied and upon the basis of follow-up information.

Results

The total number of cases of necrobiosis lipoidica diabeticorum recorded was 161. The distribution between males and females among the nondiabetic persons, persons who had had diabetes for less than 15 years, and persons who had had diabetes for more than 15 years, is shown in table 1.

Retinopathy

In group C, or 38 patients who had had diabetes for at least 15 years, other degenerative complications occurred, as shown in Table 2. The presence and severity of retinopathy were, of course, the easiest factors to establish. The diagnosis of intercapillary glomerulosclerosis was the most difficult to reach with certainty. Renal biopsy would be the only means of disclosing the nature of the renal lesion with reasonable assurance. In this study, the combination of moderate-to-severe albuminuria, azotemia, edema with or without hypertension or a frank nephrotic syndrome appeared to suggest the presence of clinically diagnosable "diabetic nephropathy." This term is more appropriate for designation of the degenerative renal complications in the diabetic patient and would imply, in all probability, the presence of intercapillary glomerulosclerosis in the majority of instances.[8] Neuropathy also was difficult to establish with certainty; minor reflex changes were not considered sufficient evidence for diagnosis.

Arteriosclerosis

Fourteen (37 per cent) of the 38 patients in group C had no clinical evidence of arteriosclerosis obliterans, coronary arterial disease or hypertension. Thirteen (34 per cent) had what probably was arteriosclerosis obliterans, on the basis of changes in peripheral pulse rates, and 11 (29 per cent) had definite evidence of occlusive vascular disease.

TABLE 1
Distribution According to Sex: Three Groups of Patients With Necrobiosis Lipoidica Diabeticorum

Group	Males		Females		Total
	No.	Per Cent	No.	Per Cent	
A. "Nondiabetics"	8	15.7	43	84.3	51
B. Diabetes of less than 15 years' duration	21	29.2	51	70.8	72
C. Diabetes of 15 years' duration or longer	15	39.5	23	60.5	38
Totals	44	27.3	117	72.7	161

TABLE 2
Degenerative Complications in Group C: 38 Patients Who Had Lesions of Necrobiosis Lipoidica and Diabetes Mellitus for 15 Years or Longer

Complication	Mild to Moderate		Severe		Suspected		Total*	
	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent
Retinopathy	18	47.4	12	31.6	0	—	30	78.9
Nephropathy	6	15.8	6	15.8	7	18.4	19	50.0
Neuropathy	10	26.3	6	15.8	4	10.5	20	52.6
Arteriosclerosis obliterans*	11	28.9†	0	—	13	34.2	24	63.2

*Including cases in which complication was only suspected.
†Not graded according to severity.

Biopsy of specimens of the necrobiotic lesions was performed in 11 cases (29 per cent) in group C. The diagnosis was considered to be sufficiently certain clinically in the remainder.

Three patients (8 per cent) had no evidence of retinopathy, neuropathy, nephropathy or clinically obvious atherosclerosis. Six patients (16 per cent) had no retinopathy or nephropathy, but did have some degree of neuropathy.

In this survey the occurrence of necrobiosis lipoidica diabeticorum among diabetic persons was between one and three instances per 1000 in the years 1959, 1960 and 1961. Previous studies had estimated the incidence to be around one per 1000 diabetic persons.[9]

Comment

In the 38 patients who had had necrobiosis lipoidica diabeticorum and diabetes mellitus for 15 years or more, the incidence of degenerative complications was that expected in the general diabetic population.[3,4] The anticipated incidence of intercapillary glomerulosclerosis among persons who have had diabetes for 15 years or more has been estimated at 35 per cent or higher.[10] Nodular glomerulosclerosis will be found in between 17 and 36 per cent of diabetic patients who die in hospitals, and diffuse glomerulosclerosis is even more common.[8] In any group of patients who have diabetes of comparable duration, more than 75 per cent can be expected to exhibit some degree of retinopathy, and 25 to 30 per cent will have retinitis proliferans.[11] Neuropathy is more difficult to predict in terms of incidence. Up to 50 per cent of diabetic patients may have minor reflex changes and pains in the extremities, and about 5 per cent (large unselected groups) usually have specific lesions of peripheral nerves.[12]

The finding of necrobiosis lipoidica diabeticorum in patients who have long-standing diabetes without other obvious degenerative complications is unusual, and is not of especial clinical significance. Among diabetic persons who have necrobiosis lipoidica the incidence of other degenerative complications generally is not lower. In this series necrobiosis lipoidica at times was associated with diabetic nephropathy, and this combination should not be considered a rarity.[3,7]

In previous series 80 to 90 per cent of patients who had necrobiosis lipoidica diabeticorum were females.[6,13,14] However, Rollins and one of us (Winkelmann)[2] found that among diabetic persons with necrobiosis lipoidica diabeticorum the distribution according to sex was about equal. Joslin and associates[3] noted a similar distribution, on the basis of sex, among their patients who had had diabetes for 15 years or more. In our study females comprised 84 per cent of the "nondiabetic" group and were seen to become progressively fewer among the diabetic patients, accounting for 61 per cent of those who had had diabetes for 15 years or longer.

Necrobiotic lesions have been reported to precede the development of clinically detectable diabetes mellitus for as long as 14 years in some cases, but it is increasingly evident that all complications of diabetes can occur prior to the onset of measurable abnormality of carbohydrate metabolism.[15] In our group of diabetic persons who had had the disease for 15 years or longer the necrobiotic lesions appeared after the onset of diabetes in all instances, the span ranging from one year to 24 years, with a mean of 10.6 years.

What, then, is the significance of necrobiosis lipoidica in the nondiabetic person? Considerably different opinions are found in the literature. Levitt[16] estimated that if the condition of such patients is followed five to 10 years, "diabetes generally develops." Numerous instances are recorded, however, in which patients have remained free of diabetes for 20 to 35 years after they have been found to have the lesions of necrobiosis lipoidica.[14,17,18] The foremost problem to be settled, then, is the question of whether the lesions in the diabetic person and the nondiabetic person are indeed the same. In both instances the classical lesion of necrobiosis lipoidica, when fully developed, is a discoid plaque with erythematous, violaceous borders showing an atrophic, yellowish, frequently depressed center with a lacy network of telangiectasis beneath the shiny, "cellophane-like" surface.[2,19] Rollins and one of us (Winkelmann) wrote that differences can be detected histopathologically, however. In the nondiabetic person the epithelioid pseudotubercles in the dermis are more suggestive of sarcoid; whereas in the diabetic person the pattern is more uniformly that of a palisading granuloma about the necrobiotic area. A difference in involvement of small vessels may further distinguish the lesions. In the nondiabetic person epithelioid giant-cell granulomas may involve the walls of the vessels; in the diabetic person the vessels exhibit fibrous thickening and endothelial proliferation with obliterative changes.[2]

If diabetic necrobiosis lipoidica and necrobiosis lipoidica granulomatosis can be distinguished microscopically, the prognostic implications of the lesion may be defined more nearly accurately. The possibility remains that necrobiosis lipoidica diabeticorum could persist as a "forme fruste" of diabetes mellitus without the patient's ever manifesting alterations of carbohydrate tolerance. There is suggestive evidence that small-vessel angiopathy is involved in the pathogenesis of necrobiosis lipoidica diabeticorum;[20,21] wheth-

er such vascular changes are causally related remains to be established. The availability of the lesion for electron microscopy and performance of histochemical technics could provide a fertile field for the study of the angiopathies of diabetes mellitus.

Summary

The incidence of necrobiosis lipoidica diabeticorum has been found to vary between one and three instances per 1000 diabetic patients. In the patient who has had necrobiosis lipoidica and diabetes mellitus for 15 years or longer, retinopathy, nephropathy, neuropathy and peripheral vascular disease occur with a frequency similar to the frequency of such complications in the general diabetic population. Necrobiosis lipoidica associated with diabetes mellitus of long standing, but unaccompanied by other chronic complications of diabetes, is uncommon.

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13–21 will appear in reprints or can be obtained from author.

IT'S THE LAW

Though it does not appear to be the general rule, a Kentucky court has held that a physician is not liable in a case where, without consent of the relatives of the deceased, he performs an autopsy to determine the cause of death, in order to comply with the statute which requires a physician's certificate as to cause of death. A physician should not sign a death certificate until he knows that the person is actually dead, and until he is satisfied as to the cause of death. If in doubt he may receive instructions from the Coroner.

Public speaking is often like drinking; a few men can do it in moderation, but many don't know when to stop.

Although a husband may be responsible for the INCOME of a family — the OUTCOME usually depends on the wife.

He who will not answer to the rudder, must answer to the rocks.—Herve

The Glomerulus in Diabetes

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TWENTY-SEVEN years ago Dr. Clifford Wilson and I presented eight cases of a glomerular lesion in diabetes with nephrotic syndrome. The approach was strictly morphologic. While studying renal lesions in hypertension, these cases were set aside. They were characterized by a striking hyaline-like deposit in the intercapillary tissue of the glomeruli, with secondary involvement of the peripheral capillary wall associated with similar lipid-containing material underneath the epithelium of Bowman's capsule. The consistent correlation of these lesions with a history of diabetes and the presence of a nephrotic syndrome came to us as a surprise.

The specificity of this lesion, its morphogenesis, its relation to clinical symptomatology, its association with other vascular changes in diabetes, and its pathogenesis have been and are still being debated. Almost all aspects of the original concept have been challenged at one time or another. A wealth of fruitful information has been accumulated and the nodular glomerular lesion has been placed in its proper perspective. I shall briefly sketch some salient points of progress that have been made in the study of the syndrome, leading to the concept of it as I presently see it.

Little attention was paid to the syndrome for several years. A number of reasons for this are given in a modern text book on renal diseases.[1] In the first place, it is stated that the lesion was reported as infrequent, an impression which was later corrected. As we shall see, the frequency depended on the morphologic criteria, which changed over the years. However, a recent survey showed that the nodular diabetic glomerulosclerosis occurred in only 7.6% of all diabetics if the criteria are strictly applied. Secondly, it is stated that Kimmelstiel and Wilson erroneously interpreted the lesion as an advanced stage of senile arterionephrosclerosis. In reality, it was pointed out that the specific lesion varies only in

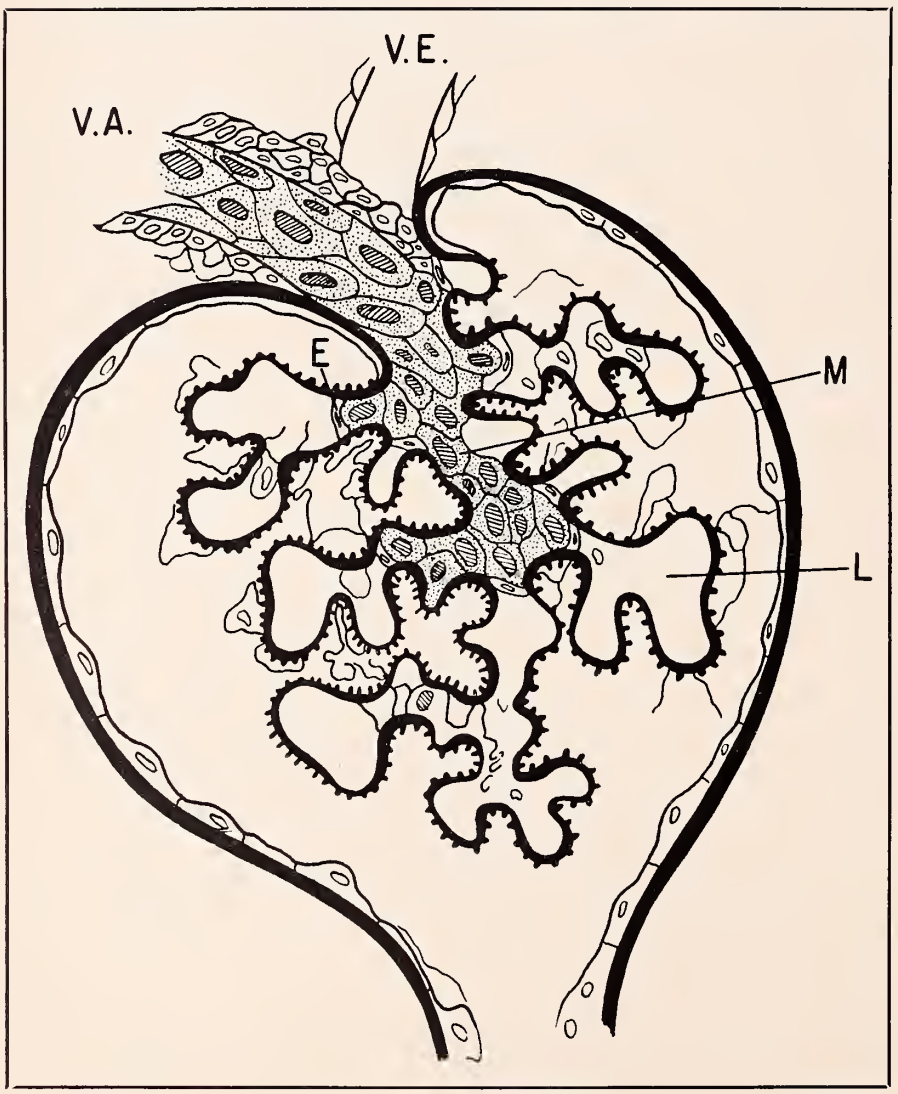
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degree from a previously described "aging process" of the glomerulus; but it was emphasized that it should not be regarded as an extension of the arteriolosclerotic process into the glomerulus. In my experience, the original impression has not changed.

The first significant criticism came from Anson in 1938.[2] He was at that time working with me and reported six cases of characteristic nodular glomerulosclerosis in patients with diabetes and hypertension, only two of whom, however, showed a nephrotic syndrome. Later experience in larger numbers of cases has confirmed Anson's observation, namely, that nodular diabetic glomerulosclerosis may indeed occur without nephrotic syndrome.

The next disconcerting report on an adequately large series of cases by reliable investigators flatly stated that the lesion described by us was nonspecific and could not be related to diabetes. Almost simultaneously, a critical analysis of the lesion showed that it was specific for diabetes but that it did not originate in the intercapillary tissue. The authors were convinced that it began in the capillary wall and suggested, therefore, the discontinuance of the term "intercapillary glomerulosclerosis." The same authors also found the lesion to be common in diabetes over forty years of age, although Wilson and I had originally stated its relative infrequency.

Thus, six years after the original report, the specificity of the lesion for diabetes was accepted by some and denied by other equally competent observers. The intercapillary or mesangial origin was regarded as a false interpretation; its consistent association with nephrotic syndrome was contradicted; and its occurrence in diabetes believed to be frequent rather than uncommon. In short, very little of the original concept was



Schematic sketch of glomerulus showing the relationship of mesangium to capillary lumina. The mesangial cells are separated from capillary lumina by flatter, endothelial cells, the cytoplasm and nuclei of which differ from mesothelial cells.

V.A.	Vas afferens
V.E.	Vas efferens
M	Mesothelial cells
L	Lumen of capillary
E	Endothelial cells

accepted without reasonable doubt. Only the conviction of its authors remained.

A flurry of publications appeared in the subsequent fifteen to twenty years.[3] Diabetic glomerulosclerosis was established as a distinct morphologic entity related to diabetes mellitus and, in addition, to the nephrotic syndrome in a significant number of cases. The nodular form of this glomerulosclerosis can now to all intent and purpose be regarded as specific, and its mesangial origin has, in my opinion, been re-established.

Morphology and Specificity

Glomerular lesions in diabetes are manifold. They may simply be ischemic in nature as a result of severe arteriolosclerosis, inflammatory as a manifestation of azotemia in hypertension, simply the result of "aging," characterized by hyaline deposit in the axial portion of the glomerulus, or they may appear in nodular or diffuse fashion, clearly definable as changes specific for diabetes. It is readily understood why the original observations were not confirmed. Unless the criteria are strictly applied, it is indeed difficult to distinguish diabetic glomerulosclerosis from nonspecific changes in arteriolosclerosis or in the aging process. We must remember that at this time the diffuse type of diabetic glomerulosclerosis was not recognized.

Glomerulosclerosis

Bell in 1947[4] described this type of glomerulosclerosis as an entity, separating it from the nodular form as a diffuse thickening of the capillary basement membrane, but he did not clearly outline its criteria. In fact, his illustration shows prominence and a diffuse thickening of the stalk. Later, electron microscopy confirmed a diffuse thickening of the basement membrane proper.

We also became aware of changes other than those in the glomerular tuft proper which occur in diabetes. In the first place, a capsular deposit was described in the original report, consisting of a lipid material later identified as containing mucopolysaccharides, deposited between the parietal epithelium of Bowman's Capsule and its basement membrane. In its early stages, where it appears as a glassy homogeneous substance, it is as distinctive and as characteristic of diabetes as the intercapillary nodule. Later, however, when organized by connective tissue it becomes indistinguishable from other nondiabetic capsular lesions.

Basement Membrane Thickening

Secondly, there is a thickening of the basement membrane of proximal convoluted tubules. Like the glomerular nodule, it resembles amyloidosis but does not take stains indicative of amyloid. This thickening is seen in conjunction with any tubular atrophy, including that due to sustained ischemia. It is suggestive of diabetes only if the tubular epithelial cells are normal, and even then only as part of a composite picture.

Sclerosis of the Vas Efferens

Thirdly, there is the sclerosis of the vas efferens in addition to that of the vas afferens. This is uncommon in arteriolosclerosis except for diabetes. Sclerosis of the vas efferens is difficult to identify unless fortuitous sections in the same plane as that of the vas afferens are seen; but when it is found, it is highly suggestive of diabetes. I have seen it occasionally in what was assumed to be nondiabetic patients, but have never seen it without other specific glomerular lesions in diabetics.

Peripheral Capillaries of Glomerulus

Finally, there has been described a distinctive deposit of hyaline-like lipid containing homogeneous material in the wall of peripheral capillaries of the glomerulus, seen in advanced stages of glomerulosclerosis. Like all other deposits it contains mucopolysaccharides but differs from the intercapillary nodule, not only by its position but also by its much greater content of fat and peculiar tinctorial reactions. Though frequently seen in diabetes, it is the least specific lesion.

What then is the degree of certainty with which the diagnosis of diabetes can be made from glomerular changes at autopsy or biopsy?

If characteristic nodular intercapillary lesions are found, the diagnosis is almost certain. Very few definite exceptions have been documented, such as in multiple myeloma or following carbon disulfide (4 cases). It should, however, be re-

membered that most everyone has seen the lesions in patients in whom the diagnosis of diabetes could not be made or excluded because of the absence of adequate laboratory data.

If, on the other hand, the glomerulosclerosis is diffuse, the diagnosis of diabetes can be made only if supplementary changes are found. These are: predominant mesangial deposits, capsular deposits, hyalinization of vasa efferentia. The identification is based on a composite picture rather than on a single pathognomonic feature.

Morphogenesis

The recognition of a diffuse type of glomerulosclerosis in diabetes was of great importance. In the first place it helped to clarify the relative specificity of the nodular form by bringing to our attention that there are other glomerular changes in diabetes, less specific but more common than the nodular lesion. Secondly, it can — as we shall discuss later — he hetter related to the nephrotic syndrome; and thirdly, it may possibly help to clarify the relationship of the diabetic state to the vascular lesions.

How is the diffuse type of glomerulosclerosis related to the nodular form? In the minds of many, the nodular form is merely the result of fusion of capillaries involved in the diffuse type of glomerulosclerosis, which occurs earlier and more frequently and precedes the nodular form. This concept was based upon two facts. In the first place, Bell and his followers denied the existence of a mesangium, as a separate and distinct tissue structure in the axial region of the glomerulus, outside and between the capillaries. Earlier, electron microscopists had confirmed the absence of such supporting extracapillary tissue because it was demonstrated that the capillaries were not separated by a basement membrane from this axial tissue, the cells of which were therefore considered endothelial in origin. Secondly, a thickening of the peripheral capillary wall could frequently be seen in diabetes without nodular deposits in the "stalk."

Value of the Electron Microscope

In recent years, however, the electron microscopist demonstrated that the axial group of cells differ from endothelial cells morphologically and functionally, showing that in these cells electron-dense material, injected intravenously, accumulates without appearing in endothelial cells.[5,6] It seems to me irrelevant whether we refer to these cells as mesangial cells, "third cells," "interluminal cells," or intercapillary cells, as long as we are aware of the fact that they constitute a separate, distinctive extracapillary structure which participates early, predominantly, and sometimes exclusively in several glomerular lesions. One of these is diabetic glomerulosclerosis.

By light and electron microscopy, a diffuse thickening of the peripheral basement membrane can be observed in diabetes, although rarely without prominent deposits of PAS positive material in the mesangium. By far the most common form of diabetic glomerulosclerosis is the mixed — diffuse and nodular form; next in frequency is the pure nodular form. The least frequent in my own experience both by light and electron microscopy is the purely diffuse form.

A study of the pure nodular form both by light and electron microscopy frequently shows a normal thin membrane emerging from a nodule, covering the peripheral aspect of the capillaries. In later stages, it too may become involved. Those who have studied the lesions by needle biopsies have reported that a diffuse sclerosis may precede the nodular form, but that there is no evidence that the latter evolves from or is the result of diffuse basement membrane thickening.[7,8]

We are thus left with the reasonable supposition that the same metabolic disorder, associated with the specific nodular glomerulosclerosis, is also separately related to the more frequent diffuse, nonspecific sclerosis, and also to a number of other lesions outside the glomerular tuft, which conjointly may be highly suggestive of diabetes.

Extrarenal Vascular Lesions

Diabetes has also been known for a long time to be associated with lesions in other regions of the vascular tree, namely, rather early onset of severe generalized arteriosclerosis, medial sclerosis of muscular arteries, and microaneurysms of retinal vessels. Most changes in the vascular tree occur, of course, without diabetes, but they are seen in this condition more frequently, ear-

lier, and are more severe. Of microaneurysms in the retina it may be said that their concurrence with glomerular lesions is striking, though they may be absent when diabetic glomerulosclerosis is found and they may also be observed in the absence of diabetes.

Vessels in the Skin

Most recently our attention has been called to changes in the walls of small blood vessels in the skin of diabetics, consisting of deposits of glycoprotein in the basement membrane and endothelial proliferation.[9] These lesions seem to occur in "early," i.e., recently discovered diabetics without "vascular complications." It is astonishing that this type of vascular lesions has not been discovered in the past, since many investigators have searched for just such changes ever since glomerular and retinal capillary lesions were known to occur with fair frequency in diabetes. Confirmation of these findings in larger series is most desirable.

Finally, the study of prediabetics has yielded surprising results of far reaching importance.[10] Renal biopsies of individuals, both of whose parents were diabetics, revealed thickening of glomerular capillary basement membranes. Even though these individuals did not have overt diabetes or detectable abnormality of glucose tolerance, it must be assumed that they are potential — if not prediabetics.

Pathogenesis

If these observations can be confirmed with reasonable regularity, we would have to conclude that diffuse glomerulosclerosis — closely resembling the findings in prediabetics (by electron microscopy) — can be manifest prior to detectable disturbances of carbohydrate metabolism. This may mean that diffuse glomerulosclerosis is not the result of a disturbed carbohydrate metabolism due to lack of effective insulin, but rather a manifestation of a hereditary abnormality of a metabolic disturbance which is as yet not defined. These deductions can at present not be applied to the nodular form since there is not enough evidence to assume that it is a mere sequela of the diffuse basement membrane thickening.

The pathogenesis of nodular glomerulosclerosis is still uncertain. The possibility that the deposition of glycoprotein in the mesangium is due to the circulation of an abnormal amount of such substances in the plasma or to the circulation of glycoprotein of abnormal structure should be considered. It would be consistent with the observations of some that the "vascular complications" and intercapillary glomerulosclerosis are greatly diminished in patients whose diabetes is well controlled. We should, however, realize that this statement has often been challenged. In any event, even a good control of a diabetic state is not equivalent to a continuously normal glucose — or glycoprotein level — in the circulating plasma. This substance could be deposited and accumulated in the mesangial tissue either by direct infusion from the blood entering the glomerulus or by reabsorption by epithelial cells transferring it from the glomerular filtrate to the mesangium through the basement membrane.

Another hypothesis of the pathogenesis of nodular glomerulosclerosis has been proposed for some time. It was suggested that it represented a deposition of insulin-antibody complexes. It has often been pointed out that diabetic glomerulosclerosis was not seen in the preinsulin era, and I can state that in my own experience, based on the tissue collection of the Mallory Institute in Boston, unequivocal nodular glomerulosclerosis was not seen in cases during the first two decades of this century. This indeed seems to fortify the immunological theory. Isolated case reports, however, have been published of nodular glomerulosclerosis in cases of diabetes never treated with insulin, and most institutions, including our own, in which renal biopsies are liberally carried out, encounter cases in which the diagnosis of diabetes was first established by biopsy. These patients, of course, had not been treated with insulin.

A recent study of diabetic glomerulosclerosis with fluorescein-tagged insulin[11] has shown that insulin binding occurs in glomeruli of diabetics even to some degree if no glomerulosclerosis could be demonstrated. This seemed to parallel an older study of glomeruli with ultraviolet microscopy, which revealed a characteristic color absorption pattern in the "stroma" of glomeruli in diabetic patients independent of the degree of involvement or the presence of inter-

capillary glomerulosclerosis. Of equal importance is the apparently well controlled demonstration by fluorescent microscopy of the binding of human anti-beef insulin serum in diabetic glomerulosclerotic lesions. Even if it is established that the material deposited in the diabetic glomerular lesion possesses a specific binding capacity for insulin, we still face the problem whether this reaction is the cause of glomerulosclerosis or a byproduct of the diabetes. Furthermore, in view of occurrences of diabetic glomerulosclerosis without insulin treatment, the binding capacity to human rather than heterologous insulin must be proven.

It may, therefore, be stated in summary that our thoughts on the pathogenesis of diabetic glomerulosclerosis are still speculative, and it may be added that none of the many attempts to reproduce this lesion experimentally has been successful.

Relation of Glomerular Lesions to Clinical Symptomatology

The correlation of the clinical triad of diabetes, hypertension, and nephrotic syndrome is certainly not as consistent as the first eight cases seemed to indicate. The frequency with which glomerulosclerosis occurs in diabetes depends on the strictness with which the histologic criteria are applied (see above). Since it apparently takes a number of years (six years is often quoted) for the nodular type to develop after the first recognition of diabetes, the frequency will vary with the age groups. Statistics will therefore vary with hospital population in different institutions. A review of many statistics and our own experience seem to justify a statement that glomerulosclerosis of both nodular and diffuse type occurs in approximately 17% of all cases of diabetes.

The frequency with which hypertension is associated with the renal lesions is of relatively little importance, since hypertension — if renal in origin — is related to the extent of the arterial — and arteriolosclerosis rather than the specific glomerular lesion. Azotemia on the other hand depends on the severity and extension of advanced glomerular involvement.

Of interest is the relationship of the nephrotic syndrome to diabetic glomerulosclerosis.[12] It may be said in general that it is more common in the young diabetic than in the old, and a recent survey of statistics has shown it to occur in approximately 30% of all cases of diabetic glomerulosclerosis. Conversely, a considerable number of cases have been reported, over the years, of nephrotic syndrome in diabetes in which no glomerular lesions could be identified. The criteria used in these cases to establish or exclude the diagnosis of diabetic glomerulosclerosis is not clear and electron microscopic observations of such cases are not avilable.

How does the nephrotic syndrome in diabetes come about? No concrete explanation has been proposed other than the hypothesis that the leakage of protein through the glomerular basement membrane is due to stretching of the engorged capillary over the central nodule. Even this explanation is not likely to be applicable since the nephrotic syndrome is more closely related to the diffuse form than to the nodular form and distention of peripheral capillaries is very uncommon in the diffuse glomerulosclerosis.

Furthermore, I must emphasize that the cause of increased permeability of the glomerular basement membrane for protein has not yet been adequately explained in any of the types of glomerulonephrosis. Electron microscopic studies have shown a variety of changes in different conditions associated with a nephrotic syndrome. Among others, changes in epithelial foot processes, thickening and mottling of the basement membrane, and electron-dense deposits on the surfaces of the basement membrane have been described in these conditions. All of these may be mere secondary phenomena and in fact they may be absent in earlier phases of experimental nephrotic syndrome produced by aminonucleosides. If we accept the thickening of the basement membranes as manifestation of dearrangement of its gel-like structure, permitting protein molecules to pass through it, we would be hard-pressed to account for similar electron microscopic changes without proteinuria, including the changes described in prediabetics.

I am presently forced to admit that demonstrable structural changes in the glomerular capillaries cannot be related causatively to massive proteinuria with any degree of certainty. This also holds for diabetic glomerulosclerosis, the nodular as well as the diffuse type.

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WHAT IS YOUR DIAGNOSIS?

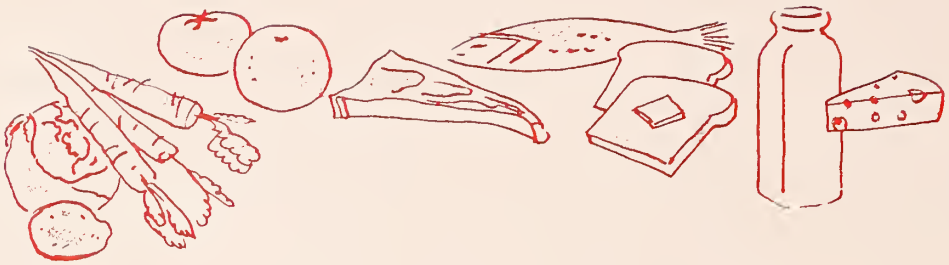
A 53 year old white male, six feet tall weighing 200 pounds, was admitted to the hospital because of left chest discomfort, fatigue, diarrhea and right thigh numbness. Though moderate restriction of his activities had been recommended since a major posterior myocardial infarction 16 months before, the patient actually had been working an 80 hour week under great tension. During this period there had developed a diarrhea of four to eight loose stools a day. The past medical history was otherwise not helpful. The physical examination on admission was normal, except for diminished sensation in the left femoral cutaneous nerve distribution.

There has been EKG evidence of an old myocardial infarction, and recent changes of myocardial ischemia, from V3 to V6. Except for an elevated sedimentation rate, blood work, including chemistries, was normal. X-ray of the GI tract and stool studies were negative. Neurological consultation considered and ruled out trauma, inflammation, toxin, neoplasm, and heredo-familial diseases as possible causes of the neuropathy of the right thigh.

After three weeks of hospitalization he was sent home on prophylactic anticoagulants. Prior to discharge a simple set of blood tests indicated the probable cause of the diarrhea and neuritis.

What's Your Diagnosis? Turn to page 1109.

Make it thy business to know thyself, which is the most difficult lesson in the world. — Cervantes



Diet and



BEFORE THE discovery of insulin, diet was the only effective treatment for diabetes. Rollo[1] in the latter part of the eighteenth century was the first to observe and record that restriction of carbohydrate would cause disappearance of glycosuria and improvement of the general condition of diabetic individuals. Bouchardet, Naunyn,[2] Von Noorden,[3] Allen,[4] Woodyatt and Joslin[5] then in turn made extensive clinical observations on the effects of various diets. During the last decades of the nineteenth century, food chemistry and the concept of quantitative diets evolved. Naunyn in particular emphasized the importance of precision in measurements of all parts of the diet; he also showed the need for restricting intake of protein as well as carbohydrate. The beneficial effect of limiting total caloric intake, to the point of undernutrition if necessary, was utilized by Naunyn and exploited further by Von Noorden, Allen, and Joslin.

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Diabetes Mellitus

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The Pre-Insulin Period

During the several years before the discovery of insulin in 1921, a number of dietary principles governing the treatment of diabetes without insulin were recognized. The following list briefly summarizes some of these as they appear to a present-day reader of the publications of that time.

1. *Obesity aggravates* and may precipitate diabetes.

2. The severity of diabetes as judged by *tolerance for carbohydrates may fluctuate spontaneously* but may be influenced favorably by control of glycosuria over periods of several weeks or months.

3. Varying degrees of *control of glycosuria and ketonuria* may be achieved by periods of fasting followed by introduction of small, increasing amounts of carbohydrate, protein, and fat in that order. When given in this sequence, carbohydrate appears to have the least and fat the greatest tendency to aggravate hyperglycemia and ketosis. The high specific dynamic action of protein (that is, the greater stimulation of caloric output) was thought to be related to the aggravating effect of protein.

4. The tolerance of some diabetic patients for food is so low that glycosuria and ketosis can be controlled only by *drastically limiting the caloric intake.* The result in practice was that some patients in the preinsulin period became emaciated as a result of the restricted caloric intake; their caloric output in the form of heat production and muscular work was correspondingly diminished. Easy fatigability and cold intolerance were characteristic of such patients.

5. Paradoxically, *starvation can under some circumstances provoke and at other times relieve ketosis.* Von Noorden says: "We . . . see that . . . ketonuria may yield both to carbohydrate starvation and carbohydrate abundance." Carbohydrate starvation may inhibit ketosis if total caloric exchange is reduced sufficiently. Carbohydrate feeding may provoke ketosis ulti-

mately by increasing caloric exchange, although initially it may inhibit ketosis.

The Insulin Period

With the discovery and availability of insulin, ketosis and death from diabetic coma no longer constantly threatened the ketosis-prone diabetic. Before 1921 such patients could be kept alive only by stringent dietary restrictions; after 1921, diet could be liberalized without an immediate threat to life. Increasing amounts of calories and carbohydrate could be utilized; growth of diabetic children became normal, and no longer was the severe diabetic recognized by his leanness. There was an urge to permit great freedom, although old habits of precision in prescription of diets persisted. Gradually there evolved a concept of "free diet" in which the diabetic patient ate freely of foods in amounts, variety and timing according to his desires.[6] Generally, however, sugars were forbidden and regularity of eating habits was encouraged. Insulin was taken in amounts necessary to prevent ketosis and dehydration and to maintain nutrition, but frank glycosuria was permitted. This did not gain wide approval by specialists in diabetes but in practice was perhaps followed by many patients.

The Diabetic Child

In particular, the free diet was attractive to pediatricians. The diabetic child, like his nondiabetic counterpart, does not naturally incline toward regularity of eating habits. He has whims of eating which are difficult to fit into a quantitative diet, but may be accommodated by a free diet. As a consequence, mealtime battles are minimized by the free diet; the child has less of a lever to use in imposing his will on the parents; and psychologic adjustments and maturation are more nearly normal. The diabetic child is sufficiently set apart from his nondiabetic friends by the need for insulin injections, the danger from insulin reactions, and the necessity for following a daily regimen of some regularity; therefore any relaxation in his restrictions is very attractive. The finding of a higher incidence of degenerative complications with a free diet perhaps outweighs the apparent immediate advantage, however.[6]

Increase of Sequelae from Diabetes

Within the decade after the discovery of insulin, the emphasis in the goals of the treatment of diabetes began to change. No longer was it enough simply to avoid ketosis and carbuncles and to maintain normal weight. The specific complications of diabetes such as retinopathy and nephropathy were seen in increasing numbers of patients kept alive by insulin. The increased incidence of coronary and peripheral atherosclerotic disease became more impressive year by year. The view that these complications could be prevented by sufficiently exact control of hyperglycemia was and is held by many of the most experienced and respected practitioners in this field.[5-7] On the other hand, evidence is accumulating that diabetic complications may be seen in patients with minimal or no demonstrable disturbance of carbohydrate metabolism,[8] and the case can be made that complications run their own course more or less independently of the control of carbohydrate metabolism.

Desirability of Precision Diet

If one subscribes to the principle of the desirability of exact control, then precision of diet in quantity, composition and timing to match the action of the insulin administered becomes all important. Sugars are thought best excluded from such a diet because of their rapid absorption and consequent extreme postprandial hyperglycemia. Protein has been suggested to be more slowly converted into blood gluucose than is carbohydrate, and hence in comparable amounts is thought to favor stability of blood glucose.[9] Fats have been considered to favor stability of blood sugar,[10] yet other observers have found no lesser stability with low-fat high-carbohydrate diets.[11] In one hyperlabile subject observed under controlled circumstances, the spontaneous fluctuations in blood sugar and glycosuria from day to day were equally great whether the diet was low-fat high-carbohydrate, high-fat low-carbohydrate, or low-fat high-carbohydrate with sugars added![12]

The Cholesterol Period

In the mid 1950's physicians became hopeful that atherosclerosis and coronary artery disease in particular could be controlled by dietary means. This interest was prompted by the discovery that certain unsaturated fats when substituted for the common relatively saturated

dietary fats would cause a fall in plasma-cholesterol levels and by the observation that many population groups subsisting on low-fat diets (and incidentally also on relatively fewer calories in proportion to need and on less protein) have lower plasma-cholesterol levels and lower death rates from coronary artery disease.

Low-Fat—Low-Cholesterol Regimen

These observations in nondiabetic populations and subjects were applied to diabetics, and a number of studies of low-fat and low-cholesterol regimens as well as unsaturated-fat programs have been instituted.[13-17]

The Effect of a Regimen

First it is difficult to evaluate the effect of a given regimen on a person's arteries. A small plaque of atherosclerosis may have lethal effects if situated in the proper place, while a more extensive but diffuse deposition of fat may have no perceptible ill effect. We have no way of easily measuring arterial disease in the living person. It is probable that a number of years of altered diet would be required before perceptible effects on the process of atherosclerosis could be discerned.

There is doubt that increased concentrations of blood lipids are the only mechanism for production of vascular disease[18] and therefore it can be questioned whether measurements of blood lipids are a valid measure of the efficacy of a program for preventing atherosclerosis. Nevertheless, there is much to suggest that hyperlipemia is an important factor contributing to atherosclerosis, and measurements of changes in blood lipids are our only feasible way of evaluating various diets within a reasonable period.

The Rate of Progression

A second difficulty is that of evaluating rate of progression and degree of the more specific complications of diabetic retinopathy and nephropathy. Studies of renal function and careful retinal observations can be made at intervals of several months; but many of the changes are probably irreversible, and many months usually are needed to form an opinion regarding progression. There is, however, a possibility that these specific complications may to some extent be related to blood-lipid levels and hence may respond to the same measures that influence hyperlipemia favorably.[11,13-15]

The Variable of Control

A third difficulty is the variable of diabetic control. Poorly controlled diabetes often results in hyperlipemia, and many regard poor control as a proven cause of rapid progression of the various diabetic complications.[7] Diabetic control must be at least approximately equivalent in evaluating effects of any differences in diet between two groups of diabetics, and diabetic control is itself difficult to measure! Thus the diabetic hyperlipemic and eulipemic population is likely to be more heterogeneous in response to dietary manipulations than is the nondiabetic hyperlipemic and eulipemic population.

Genetic Predisposition

A fourth problem is the variable genetic predisposition or susceptibility to atherosclerosis. It has been shown that some individuals develop hyperlipemia when fed a high-carbohydrate low-fat diet, yet others will experience a striking decrease in blood lipids on such a diet.[19-21] The former group is likely to respond to a diet generous in polyunsaturated fats with a decrease in blood lipids, while the latter will be expected to show an increase.

Reports on the effects of a low-fat high-carbohydrate diet on blood lipids and specific complications in diabetics are, as might be expected, somewhat contradictory, some being favorable,[11,16] and others less encouraging.[22] Reports on the effects of a generous intake of polyunsaturated fats in diabetics are in general optimistic.[13,14,17]

Variable Nature of the Diet

A fifth problem in these studies is the variable nature of the diet consumed by the test subjects during the several years prior to an innovation of diet. The new diet will be judged by changes observed following its introduction, and the change in any one individual will depend on his status at the time of starting the new diet. His status at that moment presumably depends on his previous nutrition. If a control diet is used, there is some question as to how long residual effects of previous years of eating patterns will persist. If control periods are to be used, there might be some benefit from different investigators using similar control diets to facilitate comparison.

The Body Weight

A sixth problem is body weight. Ordinarily, reduction in caloric intake causes a fall in blood-lipid levels as well as a reduction in weight, but correction of obesity per se is said not to confer any lasting reduction in hyperlipemia.[23,24] On the other hand, these observations were made for the most part on obese individuals losing toward a normal weight. It is possible that insisting on reduction in weight to levels that some might regard as undernutrition would cause a lasting reduction in blood lipids and atherosclerosis.[25] Obesity is notoriously difficult to correct, and obese people regularly estimate their ideal weight several tens of pounds higher than do more objective observers. Most would agree that correction of obesity is desirable in diabetic, hyperlipemic, or atherosclerotic individuals, and that the ideal weight or goal of weight reduction should be set rather low. Weight reduction usually requires a number of months, and during that time the observer should remember that lipid levels will be influenced by the restriction of calories as well as by other measures being evaluated.

The Blood-Lipid Fraction

A final problem is which blood-lipid fraction is the key to atherosclerosis and which should be measured to evaluate a given dietary regimen.[24] Both physical and chemical means of separation have been used, and it is probable that some fractions may contribute to vascular disease in some subjects and other fractions in other individuals. We are likely to be misled if we habitually measure any single fraction. Screening for hyperlipemic states probably should include both analysis for cholesterol and some measure of total lipids. Technics for lipid analysis are likely to be improved in the near future, and hopefully we shall know more of the significance of variations in levels of various fractions.

The Future

Diabetics in the future probably will be given a variety of diets, better adapted than now to the needs of the individual. Diets will be measured with greater precision for those patients having more unstable diabetes and for those with the ability and willingness to adhere to a more complex program. Timing of meals and intermeal feedings will be fitted to the diurnal pattern of the individual's carbohydrate and possibly lipid metabolism. Until some scheme of metering the release of insulin from a depot according to the level of blood sugar (thus imitating a normal islet cell) is devised, meals will continue to be on a regular daily schedule adapted to the action of the injected insulin over each 24 hours. Precision of diet will continue to be needed to correct obesity and undernutrition and to prevent variation in weight from the normal.

The proportions and varieties of carbohydrate, fat and protein in the diet will be determined by the response of blood lipids to test diets and possibly by some other more sensitive indicators of diabetic vascular, retinal, and renal complications.

Summary

In the present state of knowledge, we should attempt to maintain carbohydrate and lipid metabolism in the most nearly normal state possible within the practical limits imposed by the patient's ability to follow a regimen. This requires the careful instruction and periodic review of the diabetic patient in regard to principles and details of a diet suited to the character of his diabetes. It should be emphasized to the patient that the use of insulin or of an oral hypoglycemic agent is not a substitute for an exact diet, but that the possibility of hypoglycemia from these agents actually increases the importance of a carefully observed diet.

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13–25 will appear in reprints or can be obtained from the author.

KIMMELSTIEL-WILSON SYNDROME

(Diabetes-nephrosis Syndrome)

This syndrome is a degenerative nephropathy characterized by capillary or intercapillary glomerulosclerosis or glomerulohyalinosis. It occurs in patients with longstanding diabetes mellitus. Juvenile diabetics almost invariably develop the renal vascular complications within 15 or 20 years after the onset of diabetes. In adults it occurs in the 50 to 70 year age group. The incidence is twice as great in women as in men.

The renal complications occur in approximately 17 percent of diabetic patients.

There is usually arterial hypertension, diabetic retinitis, cataracts, peripheral neuropathy, microscopic hematuria, cyclindruria, albuminuria, and elevated nonprotein nitrogen.

One theory of its origin suggests that it originates in the capillary walls from a splitting of the inner basement membrane. Two forms of glomerulosclerosis are observed, the nodular and the diffuse. Both of these types may be seen in some glomeruli. The theory has been advanced that cortisone may be a factor in the development of this condition.

The clinical course is usually progressive with eventual renal and circulatory failure. Death frequently occurs within two years after its recognition. Treatment should include optimal control of the diabetes and the judicious use of ganglionic blocking agents for control of the hypertension, a low chloride, low protein, relatively high carbohydrate dietetic regime are recommended for the glomerulosclerosis.

ANSWER TO WHAT'S YOUR DIAGNOSIS

(From page 1103)

The subject of this discussion had three fairly common problems, often associated with diabetes: premature, severe coronary disease, peripheral neuritis and unexplained diarrhea.

Though this patient's Fasting Blood Sugar was normal on this admission (and on three other occasions, since 1960) a Glucose Tolerance Curve was grossly abnormal, with readings over 300 milligrams percent at two and three hours.

In addition to the dicumerol the patient received on discharge, a prescription for Tolbutamide was written and appropriate diabetes instructions were given.

Hypoglycemia in Juvenile Diabetes

TABLE 1
Insulin Effect

Type	Time of Maximum Effect (Hours)	Duration (Hours)
Regular Insulin	3	8
N.P.H. or Lente Insulin	8-12	28-30
Protamine Zinc Insulin	12-24	24-72

TABLE 2

Hypoglycemia	Diabetic Acidosis
1. Sudden onset.	1. Gradual deterioration into coma, frequently associated with infection.
2. Usually not associated with fever.	2. Fever if infection is present.
3. Occurs at time of day when patient has not recently eaten.	3. May occur any time during the day.
4. Urine test usually is negative for sugar.	4. Increased urine output with high concentration of sugar and acetone present.
5. Respirations are usually normal.	5. Respirations frequently of the Kussmaul type.
6. Serum chemistries are usually normal except for blood glucose.	6. Serum chemistries are grossly abnormal.
7. Responds rapidly to administration of glucose or glucagon.	7. Patient does not respond to glucose or glucagon.

HYPOGLYCEMIA IS not an uncommon occurrence among juvenile diabetics. The marked variation in activity of children from day to day plus the brittle nature of their disease predisposes to this complication. Because of the frequency of such "reactions" and the serious sequelae that may be incurred, it seems advisable to periodically reappraise the treatment of hypoglycemia.

Relative Hypoglycemia

In the normal individual hypoglycemia may be defined as a decrease in the blood glucose below 50 to 60 mg. %. Among juvenile diabetics, however, it is necessary that we redefine our terms. Since most juvenile diabetics are permitted to spill a small amount of sugar in their urine, the "normal" blood glucose for these children would be a level slightly above the renal capacity for its complete reabsorption. Renal threshold for glucose is usually considered to be approximately 160 mg. % A rapid drop in blood glucose from this elevated level may produce

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Treatment of

symptoms of hypoglycemia in diabetic children long before the level of 60 mg. % is reached. In a recent study we conducted, a group of juvenile diabetics were seen within ten minutes after the onset of symptoms compatible with those of hypoglycemia. The average blood glucose in this group was 60.3 mg. % and ranged from 43 mg. to 96 mg. %. More recently a girl was seen in the emergency room because of minimal acidosis which was unresponsive to small doses of insulin administered at home. During the examination she suddenly became pale, sweaty, and felt faint. An immediate blood sugar was drawn and found to be 114 mg. %. Sugar and orange juice were given and the symptoms promptly subsided. Such experiences would tend to confirm the opinions of others that hypoglycemia may be relative, and dependent not entirely upon the actual blood glucose level but also upon the rate of fall. Just as the diabetic patient may manifest symptoms of hypoglycemia at abnormally high levels, it is also possible for blood glucose to drop very slowly to a level well below 60 mg. % without associated symptoms. On one occasion when doing routine blood sugars on a group of our diabetics, a determination of 20 mg. % of blood glucose was found in a patient free from any symptoms of hypoglycemia.

Signs and Symptoms

The signs and symptoms of hypoglycemia are many and varied. They differ not only from patient to patient, but also in the same patient from one episode to another. We have observed most frequently that our children become sleepy or tired, weak, shaky or jittery, hungry, nauseated, or light-headed. At these times they may be observed to be excited, mentally confused, irritable, pale or flushed, and perspiring. Signs and symptoms of hypoglycemia may be grossly divided into those resulting from increased epinephrine secretion and those occurring as a direct result of irritation of the central nervous system.

Rapid Hypoglycemia

A rapid diminution of the blood glucose tends to cause predominance of symptoms of the epinephrine-like response — weakness, tremulousness, perspiration, hunger, faintness, paresthesias, and palpitation. The observer at these times may notice pallor, tachycardia, dilated pupils, perspiration, and elevated blood pressure.

Gradual Hypoglycemia

A gradual onset of hypoglycemia produces signs and symptoms emanating primarily from

central nervous system irritation, such as headache, thickened speech, blurred or double vision, muscle twitching, and awkwardness. Failure to correct these symptoms promptly may result in muscle spasms, unconsciousness, convulsions, and permanent central nervous system damage. Psychic manifestations also play an important role in hypoglycemia. Irritability, restlessness, confusion, stupor, negativism, amnesia, difficulty in concentration, and even hostility frequently occur. These may result in the patient's refusing help and at times even forcefully resisting any assistance.

The Central Nervous System

The secretions of the adrenal medulla are under the regulation of the central nervous system via the sympathetic nervous system. The brain is particularly sensitive to changes in blood glucose levels, since its store of glycogen or glucose is limited and its metabolism is restricted almost entirely to utilization of carbohydrates. Symptoms emanating from the disturbance of glucose metabolism in the central nervous system are similar to those resulting from other causes of hypoxia. Glucose is apparently necessary for the brain utilization of oxygen. Kety and others[2] have shown that during insulin coma the brain oxygen consumption may decrease as much as 45%, despite normal cerebral blood flow and arterial oxygen saturation. While other tissues are able to call upon protein and fat metabolisms in times of hypoglycemia, the ability of the brain to shift to these other types of metabolism is limited.

Irreversible Damage

Severe hypoglycemia insults may result in irreversible damage to the central nervous system and death. Several authors[3,4,5] have reported pathological findings in patients suffering from prolonged hypoglycemia, the lesions incurred under these conditions being similar to the ones resulting from hypoxia induced by other methods. Findings usually described consist of widely scattered areas of petechial hemorrhage, large areas of which may lead to encephalomalacia and cyst formation.

Time of Onset

The time of onset of hypoglycemia in children may closely correspond to the particular type of insulin or insulins that the child is receiving. (Table 1). The child who receives too much rapid-acting insulin, such as regular insulin or Semilente insulin, usually has a reaction within three to six hours after administration. Longer-acting insulins such as NPH and Lente insulin tend to produce hypoglycemic episodes late in the afternoon or during the early hours of the morning. The time of maximum effect of these insulins is approximately eight hours after injection; their action persists for approximately 28 to 30 hours. Protamine zinc insulin (PZI) is particularly long-acting, with maximum effect about 16 hours after injection, and its action persists for approximately 24 to 72 hours. This insulin is a common offender in precipitating hypoglycemic reactions in the middle of the night. Children receiving more than one injection of insulin per day must be observed closely for the compound effects of the insulins administered. It is imperative, therefore, that the physician and also the patient or his parents be familiar with the time-action of the various insulins and that proper adjustments be made. It should also be noted that while the various types of insulin influence the rate of onset of hypoglycemia, fasting or active exercise tends to precipitate this effect.

Value of Second Urine Speciman

The differential diagnosis between insulin hypoglycemia and acidosis is carried in most textbooks. These signs and symptoms are very briefly summarized in Table 2. The history, physical findings, and laboratory data are all important in establishing this diagnosis. One pitfall which the physicians and particularly diabetics or the parents of juvenile diabetics must avoid involves urine testing. A diabetic may become hypoglycemic and an immediate urine test may be positive for sugar. This results from an accumulation of urine and glucose in the bladder over a period of time. The patient should empty his bladder and a second specimen be obtained 15 to 20 minutes later. This is a more accurate reflection of the immediate blood glucose. It is our experience that parents are frequently not familiar with the importance of testing the second specimen, and physicians should emphasize this concept. Alert well-informed parents and patients are imperative for the prevention of recurrent hypoglyce-

mic episodes. Because of the diversity of symptoms, it is occasionally difficult for parents to ascertain if their child is having a reaction, and on these occasions a good rule of thumb is "if in doubt give carbohydrate."

Patients and parents should be aware of prophylactic measures to diminish the risk of hypoglycemia. Decreasing insulin dosage on days when there is to be particularly strenuous exercise or administering carbohydrate prior to entering into unusually active play are commonsense measures. It should not be necessary to wait for the development of symptoms before taking steps to prevent hypoglycemia. Such measures prevent wide swings in blood glucose levels which in turn diminish the "brittleness" of the disease.

Recognition of Insulin Reaction

Since marked fluctuations in blood glucose levels are relatively common among diabetic children, the symptoms of hypoglycemia are learned at an early age. In a recent survey,[6] we found most six-year-olds were familiar with the signs and symptoms of an "insulin reaction." Although the vast majority of children six to 17 years old knew they should take some form of concentrated sugar if they experienced such an episode, only 57% routinely carried any carbohydrate.[7] It is the physicians responsibility to make certain that diabetic children and their parents are aware of the dangers of hypoglycemia and that proper precautions are taken to ensure the availability of carbohydrate in an emergency.

The teachers, the principal, and the school nurse should be informed if any child in a school has diabetes. It is wise for parents of diabetic children to explain the symptoms of hypoglycemia to teachers and provide them with some form of concentrated sugar. Only 64% of the diabetic parents we studied informed the school of their child's condition, and only 50% told the teachers what steps should be taken in case of an emergency. Unfortunately, some parents of diabetics are reluctant to inform school personnel of their child's condition. Recently we have printed a brief summary of the nature of diabetes, its complications and treatment. This cardboard sheet may be inserted into the school record of our diabetic patients to provide teachers with a brief summary of diabetes and the acute complications that might arise within the classroom.

Treatment

Once the signs and symptoms of hypoglycemia appear, it is imperative that treatment be instituted immediately. A co-operative child who is not in coma can readily take 10 to 20 grams of carbohydrate orally. This usually terminates the reaction within a few minutes. Children who may be nauseated and are vomiting will find that merely sucking on a hard candy permits sufficient absorption of carbohydrate to alleviate symptoms. Those receiving PZI insulin may have recurrent bouts of hypoglycemia shortly after being revived from a previous episode. These children should be given small frequent feedings for several hours after an episode.

Hypoglycemic Agent

Once the patient becomes unconscious, the treatment of hypoglycemia assumes new proportions; there is a definite risk to the oral administration of a liquid containing carbohydrate at this time. Distraught parents trying to force sweetened juice or other solutions into the mouth of an unconscious child may cause aspiration. Intravenous administration of concentrated glucose solution is undoubtedly the most rapid means of terminating such an episode; however, the delay while transporting a child to a hospital emergency room or waiting for the physician to arrive increases the risk of damage to the central nervous system. Once the child is under the care of a physician the size and availability of veins for injecting a concentrated dextrose solution is limited and the situation intensified if the patient is convulsing. A rapid-acting, hyperglycemic agent, capable of being given subcutaneously by the parents in the home would be the ideal adjunct to therapy at such a time.

Epinephrine

In the past years the administration of epinephrine has been advocated. Its hyperglycemic effect is thought to emanate from: (1) stimulation of liver phosphorylase activity, (2) increased muscle glycogenolysis, and (3) decreased uptake of glucose by the muscle cells. In the past, the effectiveness of epinephrine has been measured by determining the resultant hyperglycemic effect. A more accurate measure-

ment is its effectiveness would be the A-V difference of glucose rather than the determination of the increment of peripheral glucose. The clinical symptoms of hypoglycemia emanate primarily from disturbances occurring *within* the cells of the central nervous system. The primary object in treating patients experiencing hypoglycemia is the restoration of normal carbohydrate metabolism within these cells of the central nervous system. Thus, cellular utilization of glucose, not the actual level of glucose in the blood, is important. Some studies have suggested that epinephrine inhibits the uptake of glucose by the cells of the central nervous system in a manner similar to its action in skeletal muscle. If glucose uptake by the cells in the central nervous system is inhibited, then, despite the hyperglycemic action of epinephrine, its effect on the actual symptoms of hypoglycemia would indeed be limited.

Glucagon

In 1953 glucagon was isolated from pancreatic extracts by Staub and his associates.[8] This is a polypeptide secreted by the alpha cells of the pancreas and has an action opposite to that of insulin. It is thought that glucagon acts primarily in the liver where it promotes the breakdown of glycogen into glucose-1-phosphate.

Studies in adult diabetics and normal adults have indicated that glucagon is an effective hyperglycemic agent when administered parenterally. Carson and Koch[9] have shown glucagon capable of elevating blood glucose in normal children; average increment of blood glucose was 54 mg. % 30 minutes after injection. However, findings by various investigators using glucagon among juvenile diabetics have not been as consistent. Gibbs et al.[10] and Traisman and Newcomb[11] have reported good response to glucagon. Hug's studies[12] indicated the effect of glucagon was variable among juvenile diabetics. Waife[13] suggested that difference in glucagon activity may be due to whether the disease was stable or brittle in nature. Recent studies we conducted in diabetic children[1] indicated that glucagon is an effective drug when administered to juvenile diabetics experiencing hypoglycemia. There was a marked hyperglycemic effect in all of the children after receiving 0.025 mg. per kilogram subcutaneously; the average increment of blood glucose among this group was 70.1 mg. % 20 minutes after the injection. A control group of diabetics received a placebo preparation and were carefully observed for a similar period of time; the change in blood glucose of this group 20 minutes later was −2 mg. %. Further investigation[14] has delineated some discrepancies of glucagon effect appearing in the literature. It was observed that most children whose blood glucose levels were less than 200 mg. % experienced an excellent hyperglycemic effect to glucagon administration. Among the children with blood glucose levels greater than 200 mg. %, the effect of glucagon was difficult to predict. It was our impression from this study that glucagon is indeed an effective hyperglycemic agent in the juvenile diabetic who is experiencing a hypoglycemic reaction. Among the children who are poorly controlled and whose blood glucose levels are markedly elevated at the time of the test, glucagon's effect is not predictable. The amount of glycogen stored in the liver of these children at such times is probably limited and consequently the effect of glucagon is not constant.

Glucagon has few side effects; however, massive doses may decrease gastrointestinal mobility and cause secondary nausea. One patient is reported to have experienced a hypotensive reaction after glucagon had been given on several occasions.[15] In our experience we have not seen any untoward reactions to glucagon when the recommended dosage was given.

Glucagon rather than epinephrine appears to be the drug of choice for the treatment of a child in severe hypoglycemia. Lacqueur and LaBurt[16] have recently reported the effectiveness of epinephrine and glucagon to terminate hypoglycemia in insulin coma therapy. When epinephrine was administered to patients it was found to be effective in terminating coma in only 50% of the cases. Among 1,258 patients, glucagon was found to be 92% effective in terminating insulin hypoglycemic episodes. It is important that the child who is given epinephrine or glucagon to terminate a hypoglycemic episode should receive additional carbohydrate by mouth once he has regained consciousness. Precautions must be taken with patients receiving PZI insulin to prevent recurrences of hypoglycemia.

Summary

Hypoglycemic episodes are not uncommon among juvenile diabetics. Initial signs and symptoms may vary among patients and even be-

tween episodes in the same patient. Prophylactic measures can prevent most of these occurrences and should be taught to the patients or their parents. Mild reactions should be treated promptly with the oral administration of carbohydrate.

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Galen's Materia Medica*

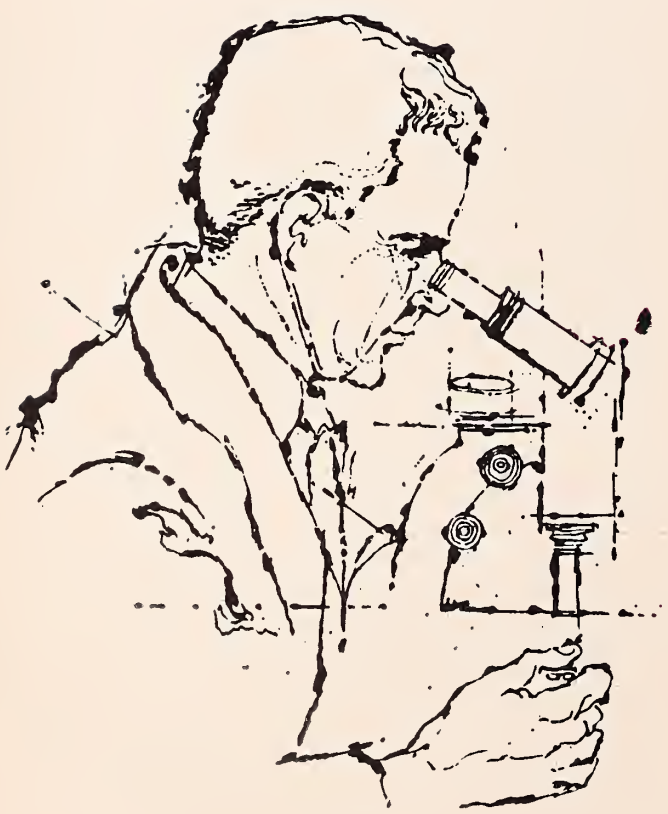
To Aid Digestion

Galen's medicinal simples include the bile of bulls, hyenas, cocks, partridges, and other animals. A digestive oil can be manufactured by cooking foxes and hyenas, some alive and some dead, whole in oil. Galen discusses with perfect seriousness the relative strength of various animal fats, those of the goose, hen, hyena, goat, pig, and so forth. He decides that lion's fat is by far the most potent, with that of the pard (panther) next. Among his simples are also found the slough of a snake, a sheepskin, the lichens of horses, a spider's web, and burnt young swallows. For colic he recommends dried cicadas with three, five, or seven grains of pepper. Pain in the intestines will vanish if the patient drinks water in which his feet have been washed.

*Thorndike, Lynn — see Minn Med Oct. '63.

If a man does not make new acquaintances as he advances through life, he will soon find himself alone. A man, Sir, should keep his friendships in a constant repair. — Samuel Johnson

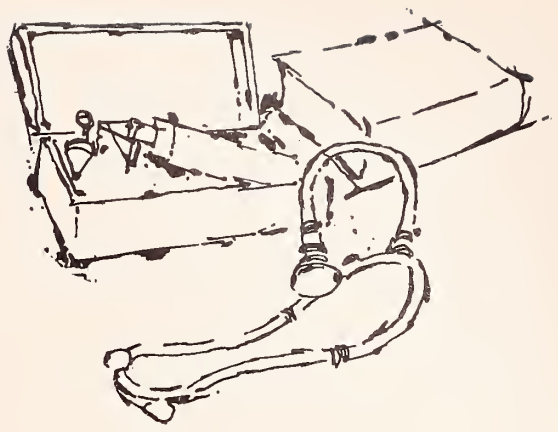
Insulin and Oral Agents



SOUND PRINCIPLES in the use of insulin and oral agents in the treatment of diabetes require definition of the objectives of therapy and understanding of the therapeutic possibilities and limitations of these agents as influenced by the severity of the diabetes of different patients. Basic to good therapy with either insulin or oral agents is an appreciation by the physician and the patient of the importance of constancy in diet, from day to day. Without consistent adherence to diet, it is not possible to secure maximal effectiveness with hypoglycemic agents.

Certain objectives of treatment should be recognized by the physician and understood by the patient. Among these, high priority is given to restoration to normal of as many of the abnormal chemical features of the disease as possible. The most readily available indices of chemical control are the values for glucose in blood and urine. Ideally, these should be kept

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Principles in the Treatment of Diabetes

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normal or near normal. However, compromises in chemical control are necessary in the best interests of some patients, if other more important objectives are to be achieved. Thus, the penalty of severe or frequent insulin reactions should not be imposed on the patient who has severe diabetes in an overzealous effort to achieve precise control of the sugar levels in blood and urine. Neither should a program be prescribed which is intolerably inconvenient to the patient or which distorts his whole life, assuming that he is compulsive enough to follow it. Nevertheless, the necessity for compromise in some patients should not lead to laxity in the management of the large number of diabetics for whom such compromises are unnecessary.

Proper dietary management, including dietary measures for weight control, is effective in about 55 per cent of all diabetic patients, without the use of either insulin or oral hypoglycemic agents; the other 45 per cent require, in addition to diet, either insulin or an oral agent, or very occasionally a combination of the two, for proper control. In recent years, the number of cases of mild asyptomatic diabetes has been increased by augmented detection efforts. In such cases, insulin and the oral agents should not be used as a means of providing license in diet.

Estimation of Severity

There is a spectrum of severity of diabetes closely related to therapeutic requirements. Early appraisal of probable severity is helpful in planning the program of treatment and in discussing it with the patient. Colwell[1] has described several useful guides in the estimation of severity in individual cases:

Long Duration

As a general rule, the earlier in life diabetes begins and the longer its duration, the more severe it is likely to be.

Intensity of Symptoms

The intensity of symptoms and signs in the

TABLE I

Objectives in the Treatment of Diabetes

1. Avoidance of immediate consequences of uncontrolled diabetes:
   a. Ketosis
   b. Protein destruction
   c. Susceptibility to infections
   d. Suboptimal general health
2. Avoidance of harm induced by therapy:
   a. Severe or frequent hypoglycemic reactions
   b. Excessively compulsive attitude in conscientious patient
3. Prevention or postponement of long-term complications:
   a. Degenerative complications (retinopathy, nephropathy, and so on) — currently, best prevented by accurate control of amounts of glucose in urine and blood
   b. Gangrene and ulceration of feet — best prevented by education on care of feet

absence of treatment bears an approximately direct relation to the severity of diabetes. For instance, the more rapidly weight is lost, the more marked the thirst and polyuria, the more frequent the occurrence of ketogenic acidosis, and the higher the levels of sugar in blood and urine, the more severe will be the disease. However, the diabetes of some patients, particularly adults, may initially appear severe but with careful treatment ultimately become mild.

Obesity

Thinness tends to accompany severe diabetes; obesity, mild diabetes. There are exceptions to this generalization, such as the lean young individual with severe diabetes who takes more insulin than he needs and becomes obese as a result of eating excessive amounts of food to avoid or correct hypoglycemia. His diabetes remains severe. Likewise, the mild diabetes of an obese adult is not converted to severe diabetes when the patient loses weight; on the contrary, the diabetes tends to become even milder as the patient becomes leaner.

Glycosuria and Ketosis

A reliable index of severity is the readiness with which glycosuria, ketosis, and insulin reaction occur as a result of irregular food intake, error in insulin dosage, unusual exercise, and intercurrent illness.

Insulin Tolerance

The daily "requirement" for insulin may or may not be a valid measure of severity. Obviously, diabetes which is consistently controllable with a modest dose of 10 to 20 units daily is likely to be milder by all standards than diabetes which requires the use of much larger doses. However, diabetes in a patient who requires, or at least tolerates, 100 units of insulin a day may be milder by all other criteria than the diabetes of a patient who requires only 20 or 30 units. One must distinguish between "requirement" of and "tolerance" for insulin for many patients do not actually require the amount of insulin they receive. Some adults have a great tolerance for insulin and can take unnecessarily large doses without experiencing significant difficulty with insulin reactions. Some young adults habitually take an excessive dose and "eat up to it" as a means of avoiding severe reactions. An extreme example of the lack of correlation between insulin requirement and severity of disease is the rare patient with insulin resistance who requires hundreds or even thousands of units of insulin a day when he eats a fairly liberal diet, but whose diabetes is of such fundamental mildness that it can be controlled without insulin if the diet is sufficiently restricted in carbohydrate.

Therapeutic Requirements in Relation to Severity

The several criteria of severity enumerated above, taken together, provide valuable advance information regarding probable therapeutic requirements for insulin or oral agents. With these criteria in mind, two large groups of diabetic patients are recognizable: (1) those who have mild disease, manageable by diet alone, particularly after the patients lose excess weight, and (2) those who have more severe disease, requiring treatment with insulin or one of the oral agents in addition to diet.

Even patients with basically mild diabetes, who have marked glycosuria and hyperglycemia at the time the diagnosis is made, will benefit from the early, temporary use of insulin: 1. Control, as well as the improvement in carbohydrate tolerance which accompanies restoration of normoglycemia, will be hastened. 2. Early treatment with insulin will provide an opportunity for indoctrination in its use, which later again may be necessary.

The group of patients who have more severe disease, which includes almost half of the dia-

betic population, can be subdivided into three subgroups on the basis of long-term requirements for insulin or oral agents. For convenience, the diabetes of patients in this group can be classified as (1) moderate, (2) severe, and (3) labile, unstable, or brittle.

Diabetes of Moderate Severity

Patients with moderately severe disease constitute possibly 20 to 30 per cent of all diabetics. These patients usually are in middle life at the time of onset of diabetes and present themselves with moderate symptoms. Their diabetes is easily controlled, although diet alone does not suffice. An oral agent is effective in some cases; but studies published to date do not provide, for a variety of reasons, a basis for accurate estimation of the frequency with which the oral agents are both effective and necessary. Certainly they are not adequate and necessary as frequently as is commonly believed. If they are prescribed, the physician should not be satisfied with anything less than excellent control. Neither should they be employed to the neglect of dietary treatment. Many patients with diabetes of moderate severity are better controlled with a single moderate morning dose of any one of the intermediate-acting depot insulins, such as lente insulin or NPH insulin (isophane insulin suspension). Such patients do not exhibit great sensitivity to insulin, and hypoglycemic reactions are not a major problem, even when precise control of the levels of sugar in the blood and urine is maintained.

Severe Diabetes

Approximately 15 per cent of all diabetic patients have severe disease, including some children and young adults, particularly adults whose diabetes is of long duration. Precise control is more difficult to achieve for these patients than for those in the preceding group. Patients with severe diabetes are moderately sensitive to insulin, and they have some susceptibility to hypoglycemic reactions, if precise control of the level of sugar in blood and urine is attempted. Their diabetes usually can be adequately controlled by accurate diet and a single fairly large morning dose (30 to 50 units) of one of the intermediate-acting insulins (lente or isophane insulin.) Such patients, by definition, are not responsive to the oral sulfonylurea drugs.

Labile, Unstable, or Brittle Diabetes

Fortunately, only about 5 per cent of all diabetic patients have disease of this type. Most of them are children, adolescents, or lean young adults at the time of onset. There is virtually no extractable insulin in the pancreas[2] or insulin-like activity in the blood plasma,[3] and the patients have lost all automaticity in the utilization of foodstuffs. They are sensitive to insulin and have unpredictable reactions. Ketosis or ketonemic acidosis occurs easily. Since no feasible program of insulin administration imitates the normal mechanisms for insulin release by the beta cells of the islets, precise control is not possible without paying undesirable penalties, particularly in the form of severe insulin reactions. Some glycosuria and hyperglycemia must be condoned simply because they are unavoidable. These patients are not responsive to oral agents, with the possible exception of some response to phenformin, on which comment will be made later. The program of therapy must be regulated to avoid frequent or severe insulin reactions, and the patient should have careful instruction regarding the early recognition and treatment of reactions. He must be aware of the possibility of ketosis, particularly in association with intercurrent illness.

For many patients with this most difficult type of diabetes, lente or NPH insulin twice daily provides a more stable diabetic life than any program involving a single morning dose of insulin. Usually about two thirds to three fourths or more of the day's requirement is given before breakfast and the remainder before supper. One or both doses can be modified either to increase or decrease promptness and intensity of action and to decrease or increase its duration. In recent years my colleagues and I have used lente insulin more frequently than any other intermediate-acting insulin, because its action is so readily modified by mixing it with semilente or ultralente insulin. Protamine zinc insulin rarely, if ever, has a place any longer in the treatment of patients who have either severe or labile diabetes.

Acute Complications

These include a variety of acute illnesses, particularly infections and acidosis, traumatic injuries, and surgical procedures. Such complications may alter the therapeutic requirements

in any and all diabetics and temporarily increase the difficulty of control. Under such circumstances, a dose of depot insulin may be continued, but chief reliance should be placed on regularly-spaced doses of regular insulin, adjusted on the basis of the results of frequent tests of the urine for sugar and ketones. A systematic and effective program of management in such emergency situations is that of Colwell.[4] A dose of regular insulin is given every 6 hours (for example, at 7 A.M., 1 P.M., 7 P.M., and 1 A.M.), together with a standard meal containing 40 gm. of carbohydrate, the "meal" to be given either orally or parenterally. At the conclusion of each six-hour period, a fresh specimen of urine is tested for sugar and acetone to determine the effect of the preceding dose of regular insulin and to suggest the size of the next dose.* This is an around-the-clock program of emergency management which requires diligence on the part of both the physician and the patient. It is not easy to apply under all circumstances of intercurrent illness in which it might be desirable, but it is highly effective when properly executed.

Comments on the Use of Oral Hypoglycemic Agents

A major contribution of the oral hypoglycemic agents has been the tremendous stimulus they have provided for investigation of all aspects of diabetes. They have made a therapeutic contribution, too, but not as great as their widespread use would seem to indicate. Because of their convenience and relative safety with respect to toxic effects, they are being employed in treatment of more diabetic patients than is necessary or desirable.

General Principles

Adherence to three basic "don'ts" would eliminate much of the unwarranted use of the oral agents: 1. Don't use them unnecessarily in the treatment of patients with mild diabetes which can be well controlled by diet alone. 2. Don't use them as a device for providing license in eating, particularly in obese patients whose diabetes would become very mild if weight were lost through adherence to a reduction diet. It is recognized that some patients will not follow a prescribed diet, but the physician should be slow to approve the use of an oral agent in lieu of diet. 3. Don't be satisfied with anything less than excellent or near-perfect control of the sugar levels in blood and urine. Unless an oral agent, plus diet, provides such control, a modest morning dose of lente or isophane insulin is usually preferable.

On the other hand, the oral drugs are well indicated in the treatment of certain adequately responsive diabetic patients who would otherwise require insulin. Indications for their use, providing they are both effective and necessary, are strengthened when the patient has manual or visual disabilities which interfere with the proper use of insulin. These include marked visual impairment, Parkinson's disease with severe tremor, and a variety of crippling conditions. An occasional mentally retarded patient and the rare victims of insulin allergy which does not respond to standard measures also should be treated with the oral agents, providing insulin is not necessary for adequate control.

To the patient with newly discovered diabetes, it is wise not to present oral therapy as an ideal to be attained, for this impedes his acceptance of insulin, which may be essential either currently or in the future. If it is apparent at the outset that diet alone will not suffice, the physician will usually be well advised to start with insulin and later, if feasible, change to an oral hypoglycemic agent, rather than the reverse.

Sulfonylureas

Tolbutamide and chlorpropamide are the oral agents which have had the most extensive use and gained the greatest acceptance. When the maintenance dose of tolbutamide is limited to approximately 2.0 gm. daily (0.5 or 1.0 gm. before breakfast and supper) and that of chlorpropamide to 0.25 gm. once daily, hazards of toxicity are slight. Other sulfonylureas have been made available from time to time for clinical trial, but as yet none has had sufficient advantage in efficacy and freedom from toxicity to warrant general use.

*A fresh specimen is one which is secreted by the kidneys during a short interval of time. It has the advantage of providing current information regarding the state of control of the diabetes. The patient is instructed to empty the bladder and discard the urine 30 minutes before the time for the test, to drink one or two glasses of water, and to collect the specimen for testing at the appointed time.

The ability of these substances to lower the blood sugar depends chiefly on the presence of some insulin in the beta cells of the islets of Langerhans, which in some manner the drugs help to liberate into the circulation. This mechanism of action has been well established by the finding of Wrenshall and Best[5] of a correlation between effectiveness of the sulfonylureas and the amount of insulin extractable from the pancreas in various types of human diabetes, by the demonstration by Yalow and co-workers[6] and others of a rise in the level of plasma insulin after administration of tolbutamide to normal and mildly diabetic human subjects, and by the electron microscopic demonstration by Williamson and co-workers[7] of changes in the ultrastructure of the pancreatic islets of the rat, including dissolution of the beta granules, produced by both tolbutamide and glucose.

The dependence of the hypoglycemic effect of the sulfonylureas on the presence of insulin in the pancreas is borne out clinically by their ability to lower the blood sugar of many patients with relatively mild adult-onset diabetes; for it is in such patients that there is an appreciable amount of extractable insulin in the pancreas[2] as well as considerable insulin-like activity in the blood plasma.[3] In the more severe growth-onset diabetes, on the other hand, once the disease is well established, there is minimal if any extractable insulin in the pancreas[2] or insulin-like activity in the plasma,[3] and the sulfonylureas do not lower the blood sugar.

Clinical factors which favor, but do not assure, a response to the sulfonylureas are: (1) onset of diabetes in middle age or later, (2) obesity, (3) no history of diabetic acidosis, and (4) absence of ketosis on withdrawal of insulin. Unless therapy with a sulfonylurea eliminates the need for insulin injections, it should not be employed at all; for there is no inherent advantage in combined therapy with the sulfonylureas and insulin.

Since accurate prediction of response to oral therapy is not always possible, a change from insulin to an oral agent should be made under close supervision. The hazard of acidosis in nonresponsive patients after withdrawal of insulin is illustrated by the following case history:

A man, 69 years of age, had had diabetes for 7 years. Good control had been maintained with diet and 15 to 24 units of isophane insulin daily. A trial of tolbutamide therapy was undertaken. Treatment with insulin was stopped abruptly, and administration of tolbutamide was started the next day. Mild thirst and polyuria developed that day and became increasingly severe, but the significance of these symptoms was not appreciated. Tests of the urine for sugar were strongly positive. After 8 days of oral therapy, symptoms of uncontrolled diabetes persisted, and the fasting blood sugar measured 272 mg. per 100 ml. After 10 days, the patient became nauseated and vomited, and air hunger developed. Because cardiac decompensation was suspected, he was referred to a clinic 200 miles away. On arrival, he was semistuporous and dehydrated, and he had air hunger. The urine contained large amounts of sugar and ketones. The blood sugar measured 550 mg. per 100 ml.; plasma bicarbonate, 6.1 mEq. per liter; plasma chlorides, 94.6 mEq. per liter; and blood urea, 54 mg. per 100 ml. In the next 18 hours, the patient received 320 units of regular insulin and five liters of intravenous fluids as treatment for severe diabetic ketoacidosis. He recovered, and treatment of his diabetes with diet and insulin was continued.

Phenformin

This drug (phenethylbiguanide) is available as 25-mg. tablets with an effect lasting about 8 hours, and as 50-mg. capsules with a more prolonged effect. Its hypoglycemic action in diabetes is due chiefly to increased anaerobic glycolysis. Unlike the sulfonylureas, it does not augment liberation of insulin from the beta cells of the pancreatic islets; hence its influence on carbohydrate metabolism is less physiologic than that of the sulfonylureas. An important factor which limits its usefulness is a relatively high incidence of unpleasant side effects when an effective dose is employed, including anorexia, nausea, vomiting, weakness, lassitude, and a bad taste in the mouth.

Phenformin initially gave some promise of lowering the insulin requirement of patients with growth-onset diabetes and stabilizing labile diabetes. In our limited experience with this use of the drug, it has infrequently been of significant value.

A few patients in whom oral therapy is desirable and who respond to the sulfonylureas to some degree, but not sufficiently to maintain good control of the levels of sugar in blood and urine, can be satisfactorily managed by combined therapy with tolbutamide or chlorpropamide and phenformin.[8,9] It would appear that the hypoglycemic effects of the two types of drug, because they involve different mechanisms, may be additive.

Summary

The most important factor to be considered in planning treatment of diabetic patients with insulin or oral hypoglycemic agents is the severity of the diabetes. Useful guides in the assessment of severity are discussed. The ideal to be achieved is accurate control of the level of sugar in urine and blood.

Principles in the use of insulin and oral agents are presented. The most appropriate insulin program varies in different cases, depending on the severity of the disease. Oral therapy should not be employed unless it is clear that diet therapy alone, including diet for weight reduction of obese patients, will not suffice. It should then be used in preference to insulin only when it provides excellent chemical control. The sulfonylureas (tolbutamide and chlorpropamide) are preferable to phenformin because their mode of action is more physiologic and they are far less likely to have unpleasant side effects when administered in an effective dose.

In some patients with severe or labile diabetes compromises in control are justifiable in order to avoid penalizing the patient with severe or frequent insulin reactions or with complex therapeutic programs of an impractical sort. In most cases, however, major compromises are not necessary.

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Worry affects the circulation, the heart, the glands, the whole nervous system, and profoundly affects the health. I have never known a man who died from overwork, but many who died from doubt. — Dr. Charles Mayo

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Nature is wonderful! A million years ago she didn't know we were going to wear spectacles, yet look at the way she placed our ears.—Annapolis Log

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Half the world is composed of people who have something to say and can't, and the other half who have nothing to say and keep on saying it. — Robert Frost

The Treatment of Diabetic Vitreous Hemorrhages

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VITREOUS HEMORRHAGES occur in adults who have been diabetic for many years and usually were diabetic as children. They show waxy exudates and micro-aneurysms in their retinas but this means little. These people seldom hemorrhage. The patient who shows a retinal vasculitis in the form of glistening white sheets of glial tissue along the main retinal vessels and a lot of new vessels about the nerve head (may look like a long standing papilledema) is a candidate for blinding vitreous hemorrhages.

The appearance of these hemorrhages may be blocked[1] by the use of an anabolic hormone — nandrolone phenpropionate (Durabolin) or nandrolane deconoate (Deca Durabolin)[2] intramuscularly in doses of 25 mg weekly.

This, however, is not the whole story. The course followed by these patients, often with Kimmelsteil-Wilson's disease, who are prevented from hemorrhaging into the vitreous humor is interesting, complicated, and often tragic. These complications are detailed in the table.

Discussion

It appears that Durabolin and Deca Durabolin will, in some unknown way, prevent diabetic vitreous hemorrhages. The degenerative retinitis known as intraretinal hemorrhages, microaneurysms, and exudates goes on unabated. The vasculitis that probably causes leaks and vitreous bleeding goes on. New vessels sprout out of the nerve head and glistening white sheets of glial scar form over the main vessels, almost completely covering them in advanced cases.

Because it is now possible to maintain a clear vitreous these people see much longer — and we can watch the relentless course of their retinal degeneration from a grandstand seat.

Visual hallucinations, and hallucinations of insulin reactions, are recorded. One wonders how often these occur in other diabetics. Slawson, Flynn and Kollar in a review of this subject[3] have found many different types of abnormal

emotional reactions associated with diabetes mellitus. Two retinal detachments have appeared spontaneously (with all the glial scar tissue seen we wonder why they didn't happen sooner). Absolute glaucoma appeared suddenly in both eyes in one man who died a few months later.

At this writing we feel that diabetic retinitis is due to a vasculitis of the retinal vessels. Durabolin and Deca Durabolin prevent leaks in the larger ones but not in those of arteriolor or capillary size. We further believe the slow, intraretinal degenerative retinitis, made up of waxy exudates, micro-aneurysms, and hemorrhages, seen sooner or later in all diabetics is due to vascular damage to the smaller vessels. As the process continues on, the larger vessels become damaged, leak, and are repaired by the sheets of glial scar so often seen.

Summary

Durabolin, when given in 25 mg doses intramuscularly every seven days, and Deca Durabolin, when given in 50 mg doses intramuscularly every 14 days, will prevent the formation of blinding diabetic vitreous hemorrhages.

It will not alter the course of degenerative diabetic retinitis; hence, these patients go on to develop loss of vision. This is caused by intraretinal hemorrhages, retinal exudates, microaneurysms, glial scar, detached retinas, and uncontrollable glaucoma. The patients do, how-

TABLE OF COMPLICATIONS

Name	Age	Vitreous Hemorrhages	Complications	Time After Durabolin Therapy Started	Comments
K. S.	40	0	1) Visual hallucinations 2) Retinal detachment RE 3) Acute iritis RE	1) From beginning of therapy 2) 6 months 3) 11 months	No trouble with left eye.
B. H.	27	0	1) Retinal detachment RE 2) Hemorrhage into retina LE 3) Progressive diabetic retinal deterioration	1) 5 years 2) 5 years 3) Course not altered	Urine — albumin, casts, RBCS, BP up. Prognosis grave.
C. D. C.	30	Many until put on Durabolin	1) Progressive diabetic retinal deterioration 2) Alopecia with use of Deca Durabolin	1) From beginning of therapy 2) 1 month	Deca Durabolin causes epigastric distress and uncontrolled diabetes. Does well on Durabolin.
W. D. J.	33	0	1) Absolute glaucoma, both eyes 2) Heart failure 3) Death	1) 8 months	Did well for eight months; then, suddenly developed several complications at once.
D. McI.	30	1	Sexual impotence	Had vitreous hemorrhage 5 months later	Believe hemorrhage due to lack of depot. effect of Deca Durabolin.
W. H. M.	55	1	None	8 months	Associated with violent physical exercise.
D. N. M.	47	0	1) Hallucinations of vitreous hemorrhages 2) Hallucinations of insulin reactions	1) From beginning of therapy 2) 5 months	Never any vitreous hemorrhage. Diabetes well controlled.
G. S.	35	Many prior to Durabolin, none since	Progressive degenerative diabetic retinitis	Not altered by therapy	Durabolin prevents the bleeding but the degenerative retinitis continues.

ever, maintain useful vision for much longer because degenerative diabetic retinitis moves slowly.

Acknowledgements: The Durabolin and Deca Durabolin used in this study have been supplied gratis by Organon Inc., West Orange, N. J.

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UNIVERSAL EMERGENCY SYMBOL



A new universal symbol which will tell anyone rendering emergency care to a person who is unconscious or otherwise unable to communicate has been adopted by the nation's doctors through the American Medical Association.

The symbol may be displayed on a wristlet, an anklet, a medallion around the neck or elsewhere. It will be a sign that there are vital medical facts on a personal health information card in the bearer's purse or wallet or on an alerting device.

Doctor Carl Potthoff of Omaha, Nebraska, served as chairman of the AMA's Committee on Emergency Medical Identification during its two years of conferences and studies.

The hexagon-shaped emblem contains a six-pointed figure, or sign of life. Superimposed on the figure is a staff with a snake entwined about it — the staff of Aesculapius, the insignia of the medical profession.

The symbol will be used by many individuals. Diabetic coma, for instance, sometimes makes its victims appear intoxicated, and treatment may be dangerously delayed. It also could indicate allergies to antibiotics, such as penicillin, and many other physical problems.

Continued from page 1092

the total group of thirty-seven completed this test without significant electrocardiographic changes despite very significant increases in heart rates. Four men showed electrocardiographic changes considered to be significant during the maximal effort involved in the dragging operation. Two were halted at about one minute because of S-T interval depression. One showed significant S-T depression but completed the work. Inadvertently one individual continued the work one-half minute beyond the prescribed three minutes and then showed 2.5 mm. S-T interval depression. There was no morbidity and no mortality.

An attempt was made to determine the energy cost of these tests so that they could be compared to energy expenditures encountered in various other activities. The energy cost of the Masters two-step test has been measured and found to be 8.5 calories per minute. Through the courtesy of the Laboratory of Physiological Hygiene of the University of Minnesota, oxygen intake and lactic acid determinations were done on one individual during the tests involving walking through gravel and dragging one hundred pounds through gravel. In this individual the heart rate rose from 70 to 180 while dragging one hundred pounds through loose gravel for three minutes. He required forty minutes to return his heart rate to normal. The oxygen intake measured by the Douglas bag method showed an intake of 2.1 liters a minute during the gravel walk. This corresponds to approximately ten calories per minute. Attempts at determining oxygen intake during the gravel drag could not be considered valid because of the inability of the equipment to allow enough air exchange. This is further demonstrated by the rise in the blood lactic acid from 7.9 mg.% at rest to 116 mg.% immediately after a three-minute gravel drag, and a level of 66 mg.% twelve minutes later. These high lactic acid values indicate the oxygen deficit incurred, a fact which is further borne out by the forty-minute time required to return the pulse to normal. It can be assumed that the caloric value for the gravel drag will be well over twenty calories per minute.

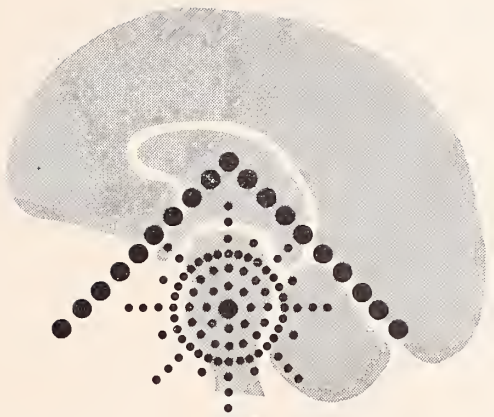
A transient narrow peaked T wave occurred in some of the very fast rates, however, no significant potassium changes occurred in four individuals studied.

Transaminase determinations were made at rest, immediately after the exercise, and twelve minutes later on four individuals. All transaminase levels rose slightly immediately following exertion, however only one exceeded the upper limits of normal. In this case, the resting value of SGOT was 27, rising to 58 immediately after exertion and falling to 39 twelve minutes later.

Summary and Conclusions

1. Thirty-seven individuals considered by their physicians as having no heart disease were evaluated.
2. These individuals were subjected to the following tests:
   a. Resting electrocardiogram.
   b. Double Masters two-step test.
   c. Three minutes walking through loose gravel.
   d. Three-minute drag of one hundred pound load through loose gravel.
3. It is evident that the tests selected indicated increasing work loads as reflected in the increasing heart rates.
4. These work loads produced sinus tachycardia with rates beyond the usually acceptable maximal rates.
5. Oxygen uptake and lactic acid determinations substantiate the increasing energy expenditures of these tests.

Continued on page 1189



in visceral motor disorders...

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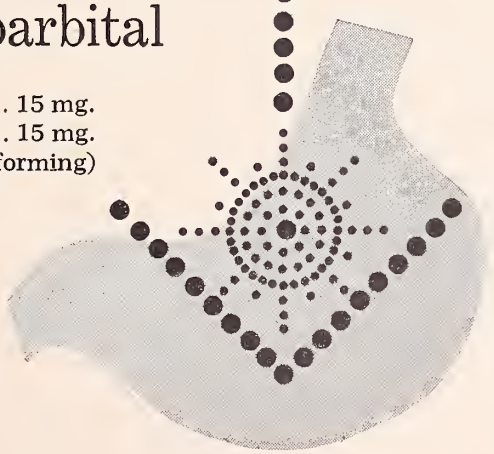
Dosage: One tablet four times a day.

Urinary hesitancy, xerostomia, mydriasis and, theoretically, a curare-like action might occur with Pro-Banthine (brand of propantheline bromide). It is contraindicated in the presence of glaucoma or severe cardiac disease. The usual precautions with regard to phenobarbital should be taken.

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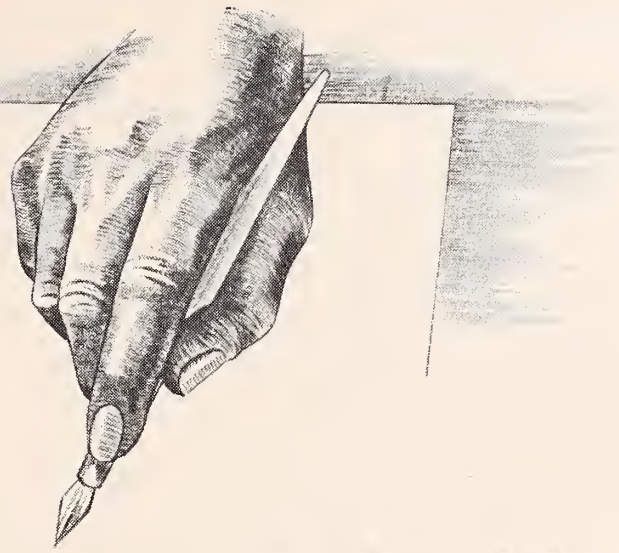
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EDITORIALS

The Diabetes Issue of Minnesota Medicine

DURING THE last few years the Committee on Diabetes of the Minnesota State Medical Association has averaged about three meetings each year. It has considered such problems as increasing and improving the detection of diabetes as well as the promotion of patient and professional education. These are also three of the major fields of endeavor of the American Diabetes Association. The committee established a speakers' bureau with a list of names of physicians available at the state office. Any of these physicians would be pleased to speak on various aspects of diabetes at regional, county or other local medical meetings.

Current estimates indicate that there are approximately 3,000,000 diabetic persons in this country. Almost half of them have diabetes which has not yet been diagnosed. This indicates that there is great need both for the treatment of those people with known diabetes as well as for greater efforts at detection and diagnosis of the disease in persons not known to have it. An increasing number of communities in Minnesota have participated in programs for the detection of diabetes.

Every physician, irrespective of his specialty or his special interest, must have knowledge of diabetes, since the patient takes his diabetes with him no matter what other medical problem causes him at the moment to seek medical attention. Furthermore, the presence of some other emergency state, whether it is medical or surgical, cannot be permitted to delay attention to the diabetes. Many diseases can aggravate diabetes and render it more difficult to control; such conditions as infectious processes, hyperthyroidism and trauma are a few of these. In many cases the treatment of the co-existing condition, and especially surgical procedures or the use of adrenal steroids, in itself is likely to aggravate the diabetic state. At such times moderate or severe diabetes may require much more careful attention than usual, and even mild diabetes may become severe, at least temporarily. For these reasons, if a physician is in a special field in which his contacts with diabetes are infrequent, it is advisable for him to request consultation from one of his colleagues when he is faced with the treatment of any other illness in a diabetic patient. Treatment must not be neglected nor the administration of insulin discontinued during postoperative periods, even though the patient is not going to eat. On the contrary, the treatment frequently must be more meticulous than is customarily necessary and frequent careful adjustments must be made in the insulin dosage.

Continued

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RORER

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Professional education, of course, was our objective when this project of a diabetes issue was initiated at the meeting of the Committee on Diabetes in November of 1962. At that time a subcommittee consisting of Drs. Wyman Jacobson, chairman; Donell Etzwiler and Dale Correa was established to investigate the feasibility of devoting an issue of *Minnesota Medicine* to diabetes. We were very pleased to find that the editor and the editorial board considered this question favorably. The subcommittee then proceeded with the task of obtaining manuscripts on a variety of aspects of diabetes. We hope this issue will be a means of supplying to our physicians in Minnesota current concepts of the diagnosis and treatment of diabetes and its complications in both children and adult persons.

Although the oral use of hypoglycemic agents has been discussed, I wish to make a few comments on this subject. Even though the advent of these agents has resulted in satisfactory and convenient treatment in a select group of patients, it has in many respects complicated the selection of treatment of diabetes. The patient often is likely to demand trial of an agent for oral use, even though the physician may judge that he is an unsuitable candidate for such treatment. In some instances the patient may be reluctant or he may even refuse to accept the physician's advice that the oral form of treatment is inadequate in his case and that the use of insulin should be instituted. If only poor or inadequate control is obtained by the use of oral hypoglycemic agents, it is the physician's responsibility to try to convince the patient that the taking of insulin is necessary. It must also be remembered and realized that the oral hypoglycemic agents have not eliminated the need for proper instruction in diet, urinalysis and other measures of treatment and diabetic care.

Our committee wishes to thank the authors who have contributed to this issue. We hope the readers of these papers will profit from them and that a similar issue may be published again.

L. O. Underdahl, M.D.
Chairman, Committee on Diabetes
State Medical Association

The Twin Cities Diabetes Association

THE EDITORS of MINNESOTA MEDICINE have made this issue available for the subject of diabetes. In Minnesota, the local group is the Twin Cities Diabetes Association, organized in 1956. The Twin Cities Diabetes Association is a dual organization: a clinical society composed of physicians interested in diabetes, and a lay society which includes diabetics and their families, and any other lay persons concerned with the disease. Most of the Association's activity has been in four areas: public education and information, establishment and direction of a summer camping program for diabetic children, diabetes detection, and support of research. It is a United Fund agency receiving support from Minneapolis, St. Paul, and South St. Paul.

The public education program has been expanded in the Hennepin and Ramsey county areas to include members of the diabetic's family, his friends and business associates, law enforcement officers, fire and rescue personnel, and school nurses and dietitians. The organization has furnished American Diabetic Association displays on standards of diabetes treatment to each Twin City hospital, basic materials to physicians planning indoctrination courses for diabetics in hospitals, and instruction and information sheets on diabetes for teachers and nurses in public schools. Annual diabetes cooking schools have been held, with 400-600 in attendance. The lay society has been addressed by physicians, who dealt with such topics as control of adult and juvenile diabetes, complications of improper insulin administration, oral hypoglycemic compounds, diabetes as a complication

Continued



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of pregnancy, and other topics concerned with daily management and control, during the past five years.

Public demand has forced phenomenal growth in the summer camping program. In 1957 the camp was activated with 21 diabetic children, a physician, a nurse, a dietitian, four counsellors, and administrative personnel. Camp Needlepoint was chosen as the official camp name by the children attending. In 1958 the number of campers grew to 74; last year 124 diabetic children aged 7-14 attended. The 1962 camp, for the third time in six years, moved to larger facilities, this time the St. Paul YMCA camp, Camp St. Croix, Hudson, Wisconsin. In 1962, the Camp Needlepoint staff, consisted of two physicians, four nurses, two dietttians, one medical technician, a camp director, two cooks, four kitchen boys, a program coordinator, two waterfront personnel, two nature lore instructors, a crafts director, four special staff, and one counsellor serving every five children. Campership are available, so that no diabetic child is turned down for lack of the fee.

Camp Needlepoint objectives are to provide a camping experience for diabetic children, to instruct these children in the care of their diabetes while leading normal lives, and to gain insight into special difficulties and problems encountered by diabetic children and their families.

The children are taught to do their own urine testing and insulin administration. With the camp physician, each child determines his insulin requirement for the day. Informal classes conducted by physicians, nurses, dietitians and staff to instruct the children about diabetes.

In 1962, and again in 1963, a pioneering effort produced a northwoods canoe trip for eight days, during which seven diabetic boys (all graduates of Camp Needlepoint) used the St. Paul YMCA Camp Widjiwagan at Ely, Minnesota, as a home base. The campers travelled 55 miles and portaged a total of 1280 rods while carrying packs weighing as much as 80 pounds. These boys were trained in trail and water safety, indoctrinated in independent management of the special diets calculated by dietitians for the trip, conditioned to carry all their food, clothing, canoes, and medical supplies on their backs; as a result there were no severe insulin reactions or other complications on either trip.

Until late 1962, diabetes detection was limited to one intensive drive in November. During Diabetes Detection Week, close to 100,000 Dreypak urine-testing kits were distributed each year. Last year 228 letters were written to physicians, with questionaires about patients of theirs reported during 1959, 1960, and 1961 as diabetes suspects. One hundred and seventy-two physicians replied, and reported that out of this group picked up by the Twin Cities Diabetes Association during Diabetes Detection Week, 57 were definitely diabetic and 34 were classed as latent diabetics. Ninety-one cases discovered among the 50,000 who returned their Dreypaks represent a case-finding rate of approximately 1.8 per 1000 tests.

A year-round diabetes detection program was inaugurated in January, 1963. The Twin Cities Diabetes Association developed a Mobile Detection Laboratory equipped to perform capillary blood glucose determinations. The Clinitron which processes these tests was made available to the association by the Department of Health, Education and Welfare of the U. S. Public Health Service. It is housed in a unique mobile laboratory (converted Greyhound bus), which provides blood tests by the hundred at prearranged public locations, or for employees of large firms which request the service. Each diabetes suspect is notified and offered a free glucose tolcrance test. If that is positive, he is told to report to his physician, who is asked to investigate the possibility that his patient is a diabetic.

Active encouragement of research is another area in which the Twin Cities Diabetes Association works. In recent years investigations into homotransplantation of pancreatic islet tissue, blood vessel alterations in the retina of human subjects and of experimental diabetic animals, and mechanisms of secretion of insulin have been supported.

Philip H. Soucheray, M.D., Pres., TCDA
Ephraim B. Cohen, M.D., Vice-pres., TCDA
Francis B. Tiffany, M.D., Chmn., Clinical Society
Harold Rivkin, Chmn., Lay Society



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Letter to the Editor:

It is my privilege to inform you that *Minnesota Medicine* has been selected to receive the American Medical Writers' Association Honor Award for distinguished service in medical journalism in the classification of State Medical Journals for 1963.

A formal citation and certificate of this award will be conferred upon you as the representative of the awardee during the course of the Association's annual banquet to be held Friday evening, October 11th, at the Pick-Congress Hotel, Chicago, Illinois.

As you probably know, AMWA's awards in medical journalism are made under the supervision of the committees which undertake as far as possible to review the qualifications of every eligible publication in each category of awards.

James E. Bryan
Executive Secretary
American Medical Writers' Association

American Medical Writers' Association Citation

"By its overall excellence in medical journalism, *Minnesota Medicine* has consistently demonstrated the highest ideals of medical literary effort. In consideration of, but not solely limited to, its clean and distinctively attractive covers; its extremely well organized contents; the clean and clear type of its pages; the timely, well-written, interesting scientific articles of high professional quality on a wide range of medical subjects; the short, intelligently prepared editorials on key issues, including the use of guest editorials; the publication of the President's Page early in each issue and its recognition as a significant contribution to the *Journal*, *Minnesota Medicine* itself has been singularly selected as the outstanding State Medical Journal of 1963. By their efforts, the editor and his associates have brought great credit unto themselves, to *Minnesota Medicine*, and to the Minnesota State Medical Association."

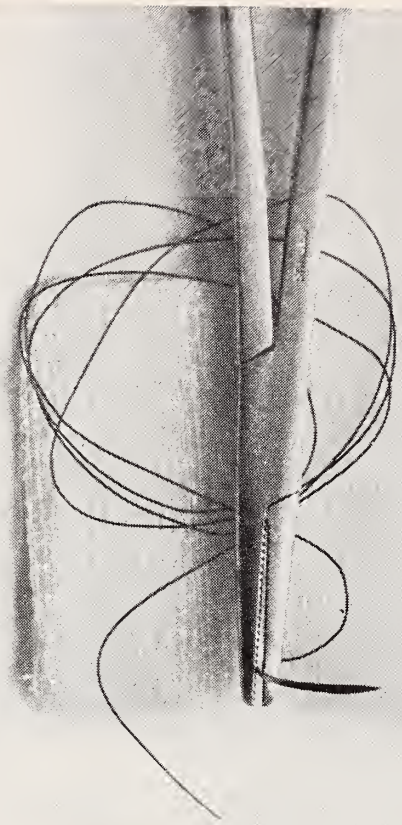
Letter to the Editor:

The editorial, "Early Carcinoma of the Cervix," by Fred A. Lyon, M.D., published in the July, 1963, *Minnesota Medicine*, is in the main an excellent summary of certain salient points in regard to diagnosis and treatment.

With present day diagnostic techniques more cases are recognized earlier and in younger women. One would gather that the editorialist favors irradiation treatment for all cases. He states that the morbidity associated with x-ray and radium is not too great to warrant their use in pre-invasive carcinoma of the cervix uteri.

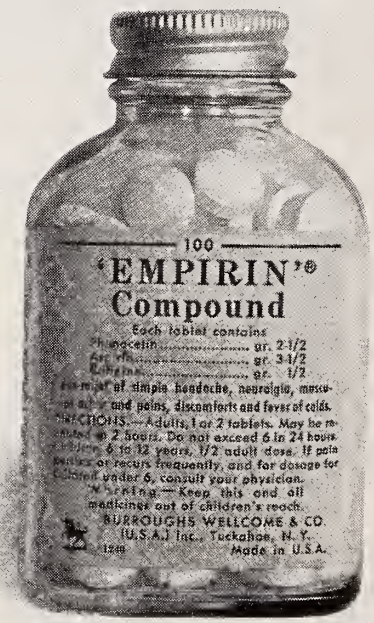
The great resurgence in the application of surgical therapy for this lesion during the past twenty years has been because many observers in all parts of

Continued



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the world felt that the irradiation morbidity, especially in younger women, was too great. There is increasing evidence that removal of ovarian function in young women leads to increased arteriosclerosis.

There are *few* gynecologists who would administer estrogen hormone replacement to a woman with carcinoma of the cervix who has been treated with irradiation. Irradiation to the pelvis in young women leads to profound changes in both psyche and soma. This is another reason why surgeons have sought techniques which would preserve ovarian function and still be adequate to extirpate the carcinoma.

Finally, as one who is interested in the surgical approach for treatment of early stages of carcinoma of the cervix uteri, I would point out that in the last sentence of the editorial, the correct spelling of the last word is e-r-a-d-i-c-a-t-e-d; it is not to be confused with "irradicated."

Mancel T. Mitchell, M.D.
Minneapolis, Minn.

President's Letter continued from page 1083

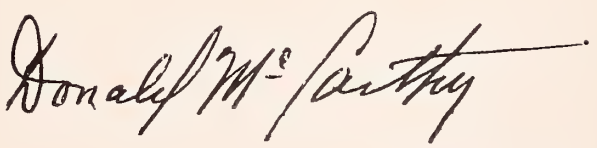
and the Survey may be obtained by writing Pre School Medical Survey of Vision and Hearing, Route 5, Stillwater, Minnesota.

3. If a child that has been screened is subsequently seen by you, please be sure to send in the Survey medical reports to the state office. The patient will bring them to you. This is important because it provides the Board with information as to adequacy of its training program for volunteer screeners and provides data concerning the amount of unrecognized difficulties in vision and hearing at this age level there are in the state of Minnesota. Please print or type your name below the signature.

"In closing I would like to quote a paragraph from a letter Mr. Al Heckman, Executive Director of the Louis W. and Maud Hill Family Foundation, wrote to Mrs. Stoltze thanking her for a progress report.

" 'I like to see our friends in the medical profession working with volunteers on volunteer projects in the interest of preventive medicine and preventive public health. Programs like the survey, in addition to the excellent preventive jobs they do for the youngsters, make an important contribution toward preserving the fundamental concept underlying the practice of medicine in the United States — a concept which has given us medical care superior to that of any other nation. The survey helps very much to maintain a proper image of the medical profession to the general public. You and your associates are demonstrating that not exerything needs to be done through governmental auspices to service the public welfare.' "

John E. Harris, Ph.D., M.D.
Chairman of the Board for
Pre School Medical Survey of
Vision and Hearing



Donald McCarthy, M.D.
President
Minnesota State Medical Association

He wears his faith but as the fashion of his hat.—Shakespeare

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Curbstone Consultation

Pectus Excavatum

QUESTION: When should a pectus excavatum be corrected in a 2 year old male infant? *M.D., Minneapolis*

ANSWER: There are two indications for correction of a pectus excavatum. The first is physical impairment of heart or lung function. However, this occurs only in extreme degrees of sternal deformity and is, therefore, only rarely the indication for surgical correction.

The second indication for correction is cosmetic (mental) disability on the part of the patient who avoids swimming or other activities necessitating removal of clothing. This is usually more of a problem of males at school age.

Although there may be other opinions, I usually prefer to follow the patient until at least preschool age. This followup is objective by means of xrays and photographs. If the deformity is static, then opinion as to need of surgical correction is deferred until this time. Often the deformity lessens and only rarely does it progress.

Surgical correction is an extensive procedure with a definite risk especially in the infants. Better evaluation of the extent of the repair is also thought to be better in the older child. The optimum age is between 6 and 8 years.

Atrial Fibrillation

QUESTION: A 23 year old female developed atrial fibrillation and pulmonary congestion in her third trimester of pregnancy. She has had a known mitral stenosis but has been a functional class I. After digitalization, she converted to sinus rhythm and completed the pregnancy uneventfully. She is now again a functional class I-II, and has only minimal changes on a P.A. chest roentgenogram. Should I continue the digitalis? *M.D., Minneapolis*

ANSWER: This patient's unknown problem is the degree of mitral stenosis. Although the pulmonary edema may have resulted from the tachycardia plus a moderate mitral stenosis and the increased blood volume of pregnancy, often a severe mitral stenosis is present. The heart size may be normal in the PA view. However, cardiac fluoroscopy, special barium swallow, oblique and lateral chest xrays will often demonstrate a selective enlargement of the left atrium. Another tip-off of a significant mitral stenosis is the engorgement of the venous picture and Kerley lines on the PA chest xray despite a normal size heart.

I would recommend that the digitalis be continued and the patient have right and left heart catheterization and necessary ancillary studies. Surgical correction of the isolated mitral block may be indicated by these procedures.

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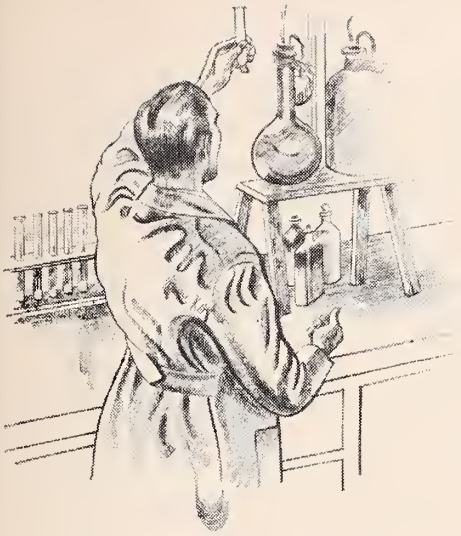
Available: 200 mg. Caplets® (green colored, scored). 100 mg. Caplets (peach colored, scored), each in bottles of 100.

Dosage: Adults, 1 Caplet (200 mg.) three or four times daily; in some patients 100 mg. three or four times daily suffices. Children (5 to 12 years), from 50 to 100 mg. three or four times daily.

Reference: 1. A.M.A. Council on Drugs: J.A.M.A. 183:469 (Feb. 9) 1963.

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Clinical Path Conference

Diabetes-Nephrosis Syndrome* and Cardiac Complication

In this case, two separate conditions were found at autopsy; one was readily diagnosed during life, the other was not. The latter might have been suspected from the clinical manifestations and could have been diagnosed by appropriate studies.

History

A 54-year-old man entered the hospital for the final time on August 24, 1961, with a one year's history of progressive generalized edema and failing vision.

Diabetes mellitus had been diagnosed at the age of 35 years. Control over the years had been only fair. During the last year of life, he took 20 units of isophane and 5 units of regular insulin daily. In 1951 a right upper lobectomy was performed for pulmonary tuberculosis. Follow-up cultures were negative and recovery from this disease seemed complete.

During the first admission, which occurred in June 1961, the chief complaint was edema of the abdomen and legs. In addition, this patient noted easy fatiguability and exertional dyspnea.

Physical Findings

Physical examination revealed the blood pressure to be 160 mm.Hg, systolic and 108, diastolic. The pulse rate was 78 per minute. There was no abnormal pigmentation of the skin. The optic fundi revealed advanced diabetic retinopathy. The cervical veins were slightly distended when the sitting position was assumed. Scattered crepitant rales were present over both pulmonary bases. The heart was not enlarged, and a Grade I systolic murmur was noted at the apex. Ascites was marked, and the liver was enlarged to a level 2 cm. below the right costal margin. The right foot was cold and pulseless. Pitting edema graded as 2+ was present from the feet to include the thighs.

---

*See Kimmelstiel-Wilson Syndrome, p. 1109.

Continued

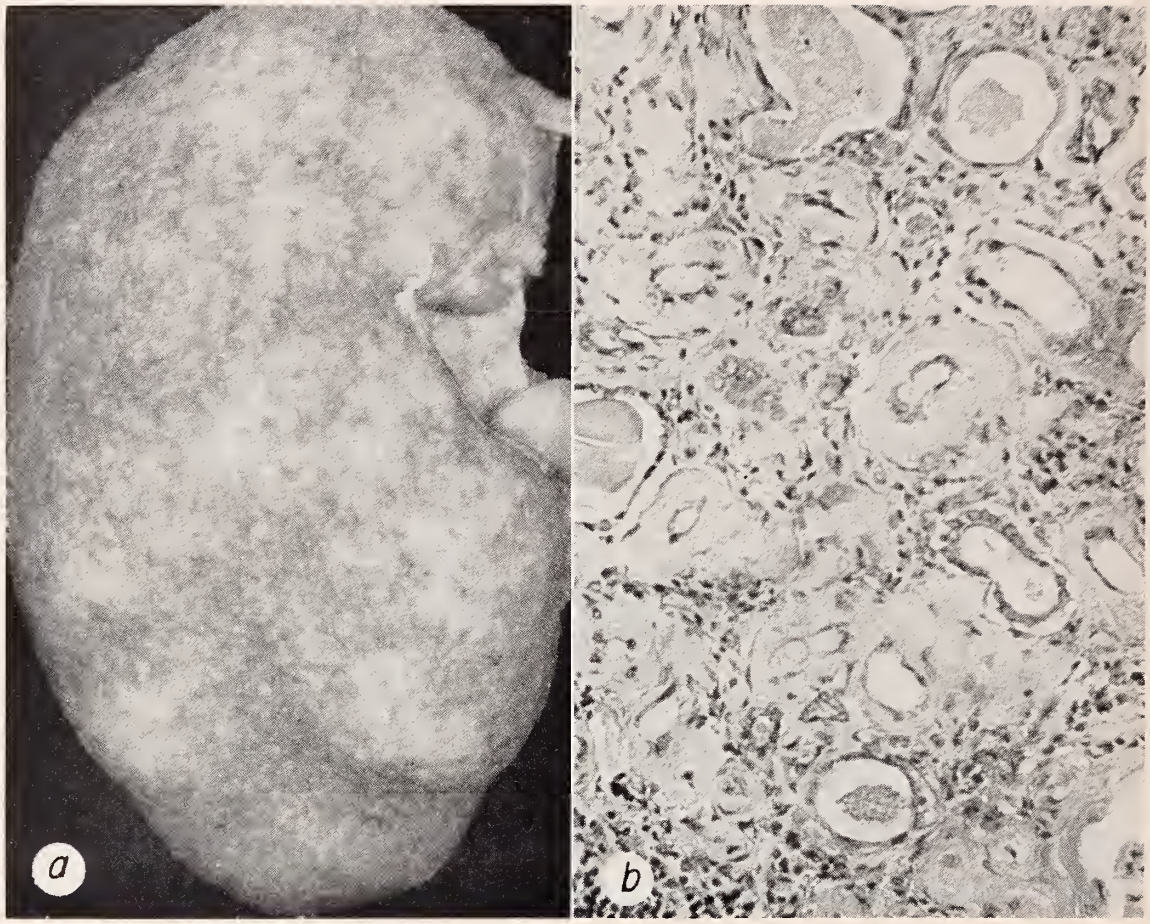


Fig. 1. — The kidney. *a.* Exterior of gross specimen. The surface is finely granular. In the fresh state, the kidneys had a translucent appearance. *b.* Photomicrograph showing increase in fibrous tissue and considerable thickening of the vascular walls. There are atrophic tubules as well. In other zones of the cortex, typical glomerular changes of intercapillary glomerulosclerosis (Kimmelstiel-Wilson disease) were present. H&E; X 400.

Laboratory Findings

The specific gravity of the urine was 1.016, and proteinurea was graded as 2+. The hemoglobin concentration of the blood was 14.1 gms., the blood urea nitrogen was 68 mgm., and the uric acid 9.3 mgm., each per 100 ml. of blood. The level of potassium was 5.6 mEq/L, and albumin 2.2 gms. per 100 ml. of serum. The level of serum globulin was 3.6 gms. per 100 ml. Fasting blood sugar determinations ranged from 38 to 274 mgm. per 100 ml. of blood. A thoracic roentgenogram showed fibrosis of the right lung, a feature which was unchanged from previous films. The patient did not respond appreciably to diuretic therapy, and he was discharged after one month.

On the final admission, the edema had become progressively worse, involving additionally the face and hands. The patient was confused and restless. The findings of the physical examination were like those of the earlier admission, with the addition of more marked distention of the veins in the neck and hands.

The specific gravity of the urine was 1.019. Proteinurea was present, graded as 2+ and glycosurea, as 4+. No acetonurea was present. The hemoglobin concentration of the blood was 12 gm. per 100 ml. of blood. The leukocytes numbered 6900 per cmm of blood. Of these cells, 88 per cent were neutrophiles. The blood urea nitrogen concentration varied from 98 to 146 mgm. per 100 ml. The level of serum sodium was 130 mEq/L, chlorides 90 mEq/L, potassium 4.7

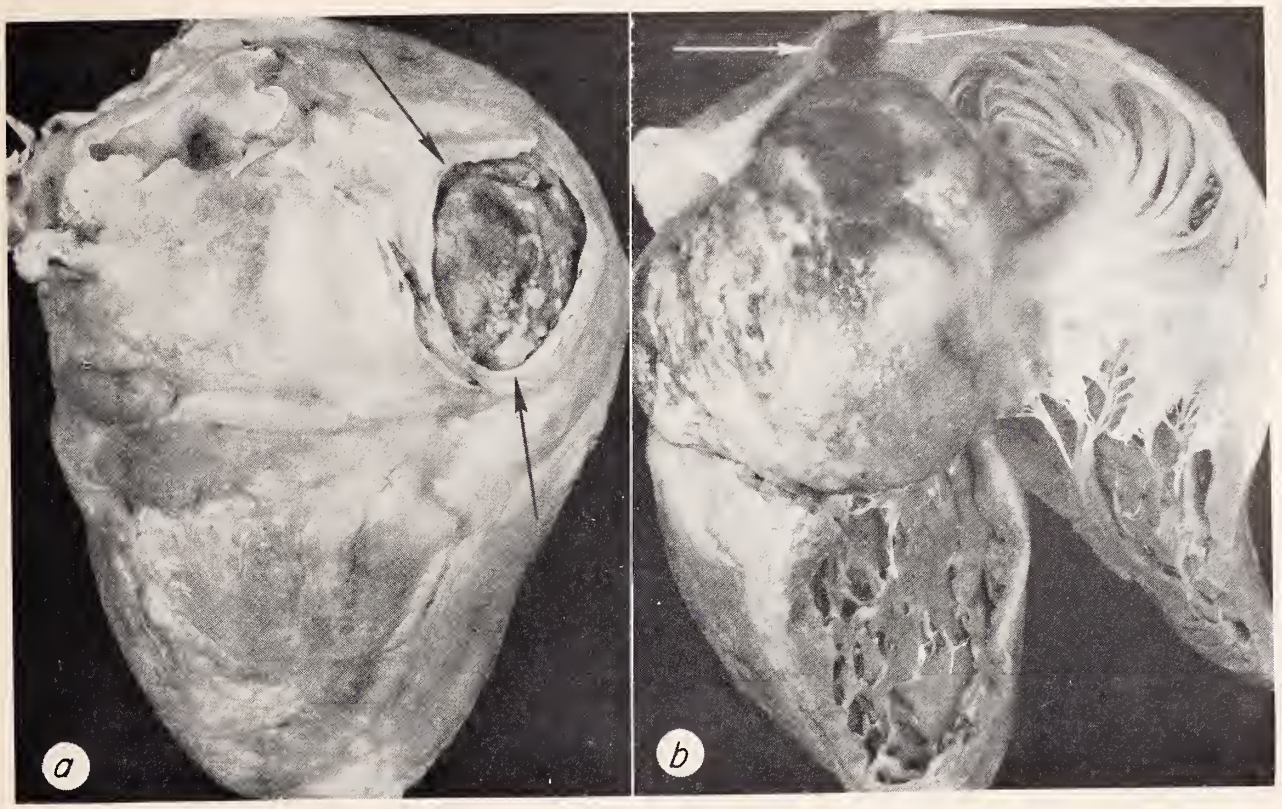


Fig. 2. — *a*. Exterior of heart viewed from behind. Through the orifice of the inferior vena cava (between arrows) the tumor occupying the right atrial cavity is partially viewed. In this perspective it is apparent that the tumor would have obstructed flow from the inferior vena cava into the right atrium. *b*. Interior of right side of heart. A large tumor mass occupies the right atrial cavity. The upper aspect of the tumor is in close apposition to the superior vena caval orifice (between arrows). The lower aspect of the tumor engages the tricuspid orifice and obstructed it.

mEq/L per 100 ml. Dyspnea became progressively more severe despite diuretic therapy. Terminally, the patient developed tarry stools associated with a fall in hemoglobin concentration to 7.4 gms. per 100 ml. of blood. He died on September 16, 1961.

Necropsy Findings

Necropsy revealed the peritoneal cavity to contain 4 liters of straw-colored fluid, and the mesentery and peritoneal surfaces were markedly edematous. The liver showed passive congestion. The right pleural cavity was obliterated by fibrous adhesions; the left contained no fluid. Crepitus was reduced throughout both lungs, but there was little evidence of pulmonary edema histologically. Gross blood was found in the colon, but no precise bleeding point. The kidneys each weighed 100 gms. and showed extensive glomerular changes characteristic of Kimmelstiel-Wilson disease (Fig. 1.). Most of the glomeruli were completely hyalinized in a diffuse fashion; a few showed nodular changes.

The heart weighed 472 gms. Each of the valves was normal. The right atrium was enlarged and filled with a round, 6.8 cm. firm brown-grey mass attached to the atrial septum over a 2.8 cm. area (Figs. 2 and 3). The mass was composed of capillaries with a large amount of intercapillary, poorly-staining eosinophilic material. The capillaries had prominent pericyte formation, and the intercapillary material contained plasma cells, macrophages, and numerous multinucleated fibroblast-like cells with syncitial cytoplasm. Scattered macrophages

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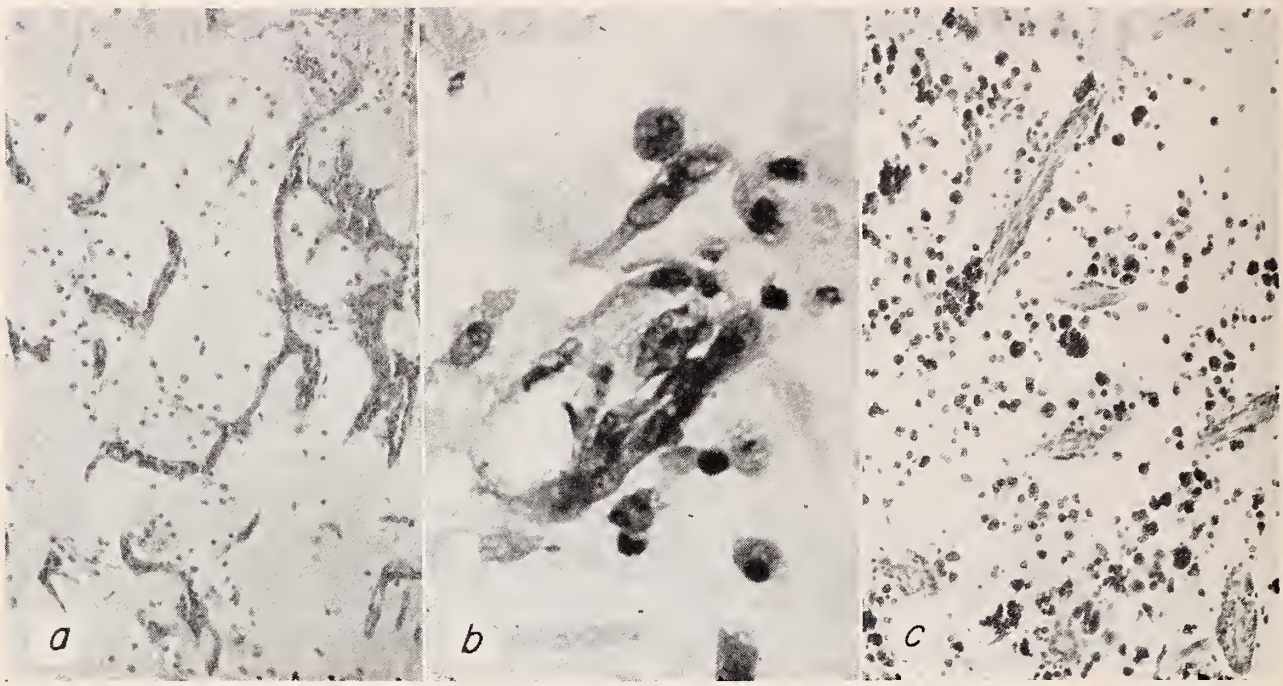


Fig. 3. — Photomicrographs of the myxoma of the right atrium. *a.* The characteristic appearance of small cords of cells surrounded by a homogeneous interstitium is evident. H&E; X 100. *b.* Higher magnification of a zone within the tumor. H&E; X 430. *c.* A zone with numerous macrophages containing hemosiderin pigment. Areas like this representing the not uncommon feature of hemorrhage within atrial myxomas leads, at times, to confusion between the entity of atrial myxoma, on one hand and organized thrombus, on the other. H&E; X 100.

containing hemosiderin were present. The myocardium was normal, and the coronary arteries showed only minimal atherosclerosis.

Comments

Although this patient had advanced diabetic nephropathy, and removal of the right atrial myxoma might not have been feasible, the case serves to illustrate a surgically-correctable form of heart failure, namely cardiac atrial myxoma. Some controversy still exists as to whether the so-called myxoma is an organized thrombus. The evidence summarized by Prichard[1] supports the concept of an entity in the form of a benign mesenchymal tumor.

The clinical picture is typically that of rapid onset of congestive cardiac failure without obvious cause. Syncope and fatigue are common. The influence of body position on symptoms may be dramatic, such as the accentuation of symptoms by being upright, or lying on one side, etc. The course tends to be rapidly progressive and unresponsive to digitalis and diuretics. The symptoms and physical findings may mimic mitral stenosis when a tumor is present in the left atrium, and should be suspected in the absence of a history of rheumatic fever. In other cases, cardiac murmurs are unimpressive or absent. Embolic manifestations may occur and conduction defects are common, especially atrial fibrillation. Hemopericardium has been described in a number of cases. The diagnosis may be confirmed by angiocardiography, and successful surgical removal of the benign tumors has been accomplished.

Diagnosis

Right Atrial Myxoma in a patient with Kimmelstiel-Wilson Disease.

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This study supported by Research Grant #HE 5694 of the National Heart Institute, United States Public Health Service.

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Industrial Medicine

Professional Ethics*

The high regard and respect which an individual ultimately attains in his community depends to a large extent upon his self-respect and personal integrity. In the same way, the ultimate place in community life which will be attained by industrial medicine is largely dependent on the genuineness of the service given and the personal and professional integrity of the participating doctors and nurses.

The general principles of medical ethics are well known, but industrial practice has so long been considered a side line that in some instances professional behavior may not be as clearly defined as it might be. Some physicians look upon part-time industrial medical practice as a means of building up a more lucrative private practice. They may come to regard the contact with industry as giving them a monopoly on the treatment of the occupational accidents and diseases originating in the factories which they serve.

It is legitimate for a practicing physician to accept occupational injuries coming to him voluntarily or referred to him by officials of any company whether he is a part-time employe of the company or not. Management, however, should not exercise undue pressure upon a workman to induce him to go to a physician of the company's choosing. In Minnesota it is established by law that a workman has the privilege of seeking attendance from any physician he chooses in spite of the wishes of management or anyone else.

It is unethical for a physician in private practice, whether he receives a retainer fee from the company or not, to seek an arrangement with, or have an understanding with, any company employe to channel nonoccupational conditions in his direction for private treatment.

It is ethical for a physician to accept employment with a company either on a part-time or full-time basis. The company, however, cannot undertake to deliver to the physician for treatment all occupational or nonoccupational conditions coming out of a given industry. This would be interfering with a workman's privilege of selecting his own physician.

The company officials may, and frequently do, ask that all pre-employment physical examinations be performed by the physician whom they select. Workmen have little choice in this matter because the company can refrain from hiring them if the applicants refuse to co-operate.

It is common and accepted practice for a physician who is employed on a part-time or full-time basis to conduct pre-employment or preplacement examinations at the factory. In such cases it is customary for the physician to receive no extra fee for conducting the examinations. Whether he is functioning in this way or on a fee for service basis the examining physician is under a moral obligation to the patient, as well as the company, to perform a good examination.

When diseases or abnormalities are discovered by a physician making physical examinations for a company, he should discuss them with the workman and urge him to get treatment when treatment is indicated. It is unethical for a physician to suggest that he himself undertake the treatment. He should rather inquire the name of the workman's private physician and urge the patient to see his own doctor about treatment. He should even contact the patient's personal physician, after obtaining the patient's consent, to give him the benefit of his opinion and explain the details of the physical examination and laboratory findings which substantiate the diagnosis. He should further explain to the private physician the genuine interest of the company in the workman's health and the wish

Continued

*While the opinions expressed herein represent the opinions of the author, the paper has nevertheless been reviewed and publication in THE BULLETIN authorized by the Committee on Industrial Health of the Hennepin County Medical Society.

of the company to have him back at his regular job as early as possible.

There is no excuse for an industry trying to direct the treatment of nonoccupational conditions to any certain physician. When it comes to occupational accidents, however, the situation is a little different. The care of occupational injuries and illnesses are paid for by the company while nonoccupational conditions are the personal responsibility of the workman. Sometimes the company is self-insured, and sometimes the risk is carried by an insurance company. Whatever the method, the company is interested in several things, namely — quick and proper treatment, maximum reduction of permanent disability, maximum restoration of function, and the minimum of lost time. When these objectives are reached the cost is automatically at its lowest point. It is only natural and good business to have occupational conditions handled by a physician who gives the company the best service. Usually, the doctor who is serving the industry full-time or part-time is in the best position to give the best service to both the employes and the company. On many occasions, such an industrial physician will refer occupational cases to other doctors for treatment, but even in these instances the interests of the company and their employes are best served by channeling occupational cases through the plant physician. The liability of the company or insurance carrier is unaltered when the workman chooses to have occupational conditions treated elsewhere.

There are additional reasons why a company should want occupational illness treated by the company physician. In the first place, the company physician should know the plant and its hazards better than any outside physician. He is in a better position to make a correct diagnosis of occupational disease and in many cases he can protect the company from unjust claims. The workman, in spite of company urging, may choose to have his known or suspected occupational illness handled by an outside doctor. In such an event, for the benefit of the company and to protect the private physician against a rash diagnosis, I believe the plant physician should work closely with the private physician and give him every assistance he can. By such close co-operation three parties are benefited: the attending physician, the patient, and the company he works for.

If a company physician discovers a nonoccupational condition requiring treatment, and the patient wants to know where to go because he has no private physician, the company doctor should give the workman the names of several physicians in his own residential area and then ask the patient to make a choice from the list. The selection of an outside doctor should be absolutely without prejudice. Where the workman insists on going elsewhere for treatment, the company doctor should give his approval and assistance if he can conscientiously do so.

The outside physician or surgeon, on his part, should recognize the continuing interest of the company physician in the workman who is under treatment. He should realize that when the company doctor makes an inquiry as to the patient's progress, he is serving his company and its employes and not trying to interfere in anyone's private practice. The outside surgeon should further realize that the company physician is one of the team caring for an occupational condition and he should return the patient to the company physician as soon as the worker is well enough to work.

"A Guide for Industrial Health Practice in Minnesota" mentions the following unethical practices which speak for themselves:

> "It is not ethical for an industrial surgeon, while caring for an industrial injury or disease, to urge the patient to have a concomitant and coincidental disease treated by himself at the worker's expense . . . A physician or surgeon is not to use his industrial affiliation as a direct means of gaining a private practice among plant workers. This includes solicitation, low fee arrangements, and insinuation of reprisals against workers who insist on care by physicians of their choice."

If both private practitioners and industrial physicians adopt the Golden Rule for their guide, they will not go far astray in their professional relationships.

W. E. Park, M.D.
Committee on Occupational Health
Minnesota Medical Association

Reference

A guide for industrial health practice in Minnesota. Minnesota Med Aug. 1951

The Role of Angiotensin in Hypertension*

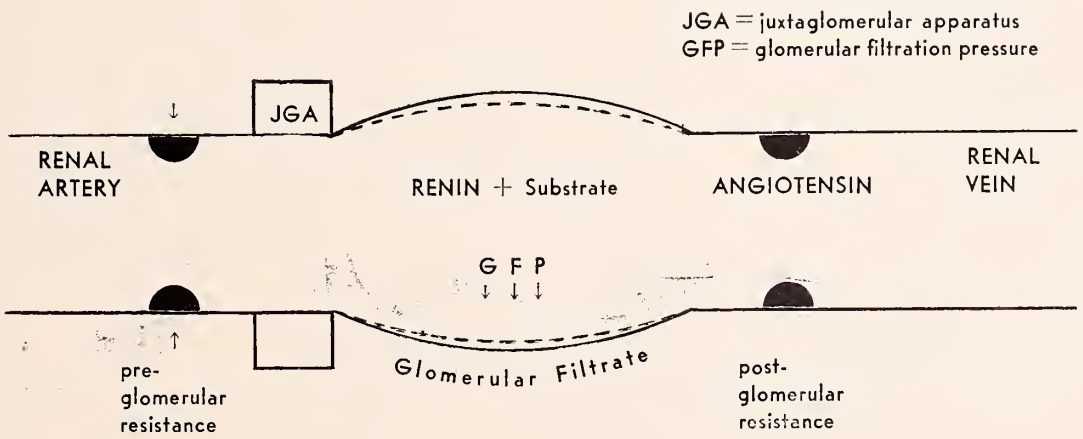
The fact that the kidney may play a role in hypertension in the human became generally accepted after Goldblatt,[1] in 1934, was able to produce a persistent hypertension in the dog by means of renal ischemia.

Later studies showed that this type of hypertension was mediated by a humoral agent, probably angiotensin.[2,3]

Angiotensin (hypertensin or angiotonin) is a pressor polypeptide which is produced from a plasma globulin by the action of a renal enzyme, renin.[3]

The Renin Theory

Through the experiments of a host of investigators in the field of hypertension over the past 25 years, an attractive theory has developed concerning the etiology and mechanisms involved in renal and perhaps even essential hypertension.[4,5] Schmid,[6] postulates renin as the physiologic regulator of renal hemodynamics. He summarizes this concept by means of a diagram.



Schmid proposes that renin formation is controlled by a pressure sensitive feed-back mechanism operating across the glomerulus between the juxtaglomerular cell and the post-glomerular resistance. This would serve to keep a constant glomerular filtration pressure because when the blood pressure and therefore the filtration pressure drops below normal the pressure sensitive juxtaglomerular cells increase the secretion of renin which converts a plasma protein to angiotensin. This potent pressor substance acts locally to increase the post-glomerular

*Presented as a Medical Grand Rounds at the Mt. Sinai Hospital, Minneapolis, Minnesota.

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resistance in the efferent arterial, causing an increase in the filtration pressure within the glomerulus. The feed-back is complete when the juxtaglomerular apparatus senses the increased pressure and responds with an inhibition of renin secretion.

This theory has been supported by a number of investigators: Tobian's work[7] showed the relationship between the granulation (or secretory activity) of the juxtaglomerular cells and the pressure in the renal arterial bed and/or the volume of blood in the arteries. The granulation was increased in situations which reduce the pressure or the volume of blood in the renal arteries and decreased when the opposite occurs. The localization of renin in the juxtaglomerular apparatus of the kidney has been shown by Bing,[8] Hartroft and Edelman,[9] and others. The fact that angiotensin is a very potent pressor substance has been proven by Kohlstaedt,[10] Brown-Menendez[11] and others.

However, the tempting hypothesis that hypertension in man is due to increase of renin or angiotensin in the blood because of malfunction of this renal hemodynamic mechanism is still far from being proved.[12] Taquini points out that hypertension may be explained by the renin theory if an increase in renin or angiotensin is found in the hypertensive animal or man, due either to increased production or diminished destruction. The studies of Haynes,[13] Taquin,[14] and Peart[15] fail to show any increase in renin and those of Scornik and Paladini[16] have shown that there was no relationship between plasma angiotension levels and blood pressure in normal and hypertensive animals. Haynes[13] did measurements of the renin content of the renal vein by means of direct catherization of the vein in twelve normotensive patients and in twelve patients with essential hypertension, four of whom were in the malignant phase. He found no significant difference in renin content of the venous blood in these patients using available bioassay methods.

Dual Role of the Kidney

Brown-Menendez[17] has suggested that the kidney plays a dual role in renal hypertension. On the one hand the renin-angiotensin system exerts *a hypertensive effect* and on the other hand the normal kidney exerts *an antihypertensive effect*. He suggests that this anti-hypertensive effect is dependent upon an extrarenal hormone which he calls renotropin and has a relationship to the kidney similar to that between ACTH and the adrenal cortex. The rate of production of renotropin increases under influence of pituitary, thyroid and androgenic hormones as well as with a high protein diet. Its concentration in the blood is maintained by an equilibrium between its rate of formation and its rate of destruction or utilization by the kidney. The normal reaction to a decrease in functional renal tissue, as is involved in the production of experimental renal hypertension, would therefore be an increase in the blood level of renotropin which would stimulate a hypertrophy of remaining renal tissue until the renal mass was sufficient to reduce the level of renotropin to normal and establish a new equilibrium. The role of angiotensin in this scheme is not clear, but presumably the renotropin, if allowed to remain at an increased level in the blood due to insufficient functional renal mass, would stimulate the production of renin and cause systemic hypertension. This theory seems to explain several of the classical observations in experimental and human renal hypertension.

In a recent review of the literature, Dr. Louis Tobian[18] advances a theory which seems tenable in view of what is now known about experimental hypertension in animals. Since recent studies tend to show that renin (or angiotensin)

Continued

does not maintain hypertension as a direct pressor substance, he postulates an anti-hypertensive function of the kidney, the lack of which brings on hypertension and the action of which will bring down an elevated blood pressure. This may be a hormone which is regulated by the rate of renin secretion by the juxtaglomerular cells in response to decreased pressure in the afferent arterial of the glomerulus. The renin would have an inhibitory effect on the anti-hypertensive cells of the kidney or on the hormone itself.[19]

Antihypertensive Serum

The foregoing hypothesis could explain the results of experiments done by Wakerlin[20] in which an antibody to renin was produced in dogs with experimental renal hypertension in response to repeated injections of hog renin. The blood pressure in these chronic renal hypertensive dogs fell to normotensive levels as the antirenin titer increased to a maximum. As the antibody titer began to fall after stopping the hog renin injections, the dogs gradually became hypertensive again. The passive transfer of a homologous antiserum of this type also had an antihypertensive effect in dogs with chronic renal hypertension. Wakerlin concludes that renin is an important factor in experimental renal hypertension, but that it may exert this effect by interfering with the anti-hypertensive factor of the kidney. This would explain the production of renoprival hypertension and the maintenance of hypertension following complete nephrectomy in chronic experimental renal hypertension in the rat.

Unexplained Factors

There are still several factors from observations on experimental renal hypertension which are not adequately explained by any single theory.

1. Renin content in both the kidney and the blood is increased for the first ten days after clamping the renal artery and then returns to normal although the animal remain hypertensive.[21]

2. Effect of removal of an ischemic kidney in animals with experimental renal hypertension in the early phase (up to ten days) is a normalization of blood pressure.[22] In well established hypertension, however, the animals remain hypertensive even after total nephrectomy.[23]

3. The grafting of a normal kidney into a hypertensive animal[24] or man[25] results in a fall in blood pressure. However, the grafting of a normal kidney does not lower the blood pressure of an animal in which the pressure is elevated by an infusion of renin or angiotensin.[24]

4. In cross-circulation experiments there is no increase in the blood pressure of the normal rat when receiving blood from a chronically hypertensive rat. However, with rats made hypertensive by a continuous infusion of renin the blood pressure of a second rat connected to the first by cross-circulation will also be elevated.[26]

5. In rats made hypertensive by the clipping of only one kidney, the contralateral, normal kidney does not prevent the elevation of blood pressure.[18]

Chronic Essential Hypertension

It appears, therefore, that there is a significant difference between the factors which cause acute renal hypertension and those related to the maintenance of elevated blood pressure in chronic essential hypertension. While the angio-

tensin-renin system may be implicated in hypertension due to acute renal ischemia, there is very little evidence to indicate that it is involved in chronic hypertension. (The work of Wakerlin[20] on anti-renin antibodies being the exception.)

Exhaustion Atrophy of Kidney Cells

Tobian[18] has suggested that the maintenance of hypertension following acute renal hypertension (and perhaps in essential hypertension) may be due to an exhaustion atrophy of cells in the kidney which normally exert an antihypertensive effect. This may be due to the constant stimulation caused by the hypertension which is due to angiotensin in the early phase of the disease. He also feels that the actual mechanism elevating blood pressure is related to the sodium and water retention of the smooth muscle cells in the walls of the arterioles and that sodium metabolism and aldosterone secretion are also related to the renin-angiotensin system and therefore important in the etiology of hypertension. His later work has been concerned with this theory.[27]

In regard to our present case, we enter into yet another interesting and stimulating field of research: that is, the relationship of toxemia of pregnancy to chronic hypertension. There is, however, very little in the current literature concerning angiotension in pregnancy with or without preeclampsia. Abdul-Karim and Ossoli[28] have studied the pressor response to a standard intravenous dose of angiotension in pregnant, puerperal, and nonpregnant women. They found a significantly higher response post partum than in the same women during pregnancy and a pressor response in nonpregnant gynecologic patients which was similar to that in the post partum subjects. This is consistent with the work of Page[29] who found a progressive rise in the blood level of anginotonase (the enzyme which destroys angiotensin) in human pregnancy. On the basis of this information, one would predict that if chronic hypertension was related to angiotensin, there would be a progressive lowering of the blood pressure in a hypertensive woman during pregnancy. There are no good controlled studies to confirm this at the present. Abdul-Karim and Assoli point out a number of factors which would make these studies difficult; such as superimposed toxemia, drug therapy, and hemodynamic changes during pregnancy.

While a vast amount of work has already been done on the role of renin and angiotensin in hypertension, it is apparent that our knowledge in this field is still far from complete and the many theories advanced have yet to be proven. Recently, with the synthesis of pure crystalline angiotensin II, there has been new impetus to investigation in this field.

Case Summary

This patient is a 30 year old white female who has had known severe hypertension for the past five years. Her most recent admission was because of attempted suicide with overdosage of Guanethidine and Equanil tablets. She was first admitted here in 1953 for delivery of her second child. Blood pressure at the time of delivery was 180/100, but became normal following delivery. She had had mild toxemia during her first pregnancy. She had another full-term delivery in 1954 at which time her blood pressure was 170/100, again falling to normal after delivery. She had two subsequent deliveries in 1956 and 1957, at which time her blood pressure was again elevated, prior to delivery. Her pregnancies were also marked by edema, excessive weight gain, and headaches. Following the birth of her fifth child in 1957 a tubal ligation was done. However, following this last pregnancy she continued to have a persistent hypertension in the range of 210 to 250 systolic and 120 to 130 diastolic. During the past year she had been treated with Guanethidine and her blood pressure maintained at levels of 130/90 to 145/95.

Continued

Physical examination on admission revealed a depressed but otherwise normal white female. Blood pressure was 130/90 supine and 125/85 standing. Pulse was 96. There was some puffiness of the upper eyelids. Fundi were negative except for mild A-V nicking; no exudates or hemorrhages were seen. The heart and lungs were negative. The abdomen was negative. The remainder of the physical examination was within normal limits.

Laboratory examination revealed urinalysis negative. Hemoglobin 10.0 gm%, BUN 20 mg%, serum sodium 142 mEq/l, potassium 4.2 mEq/l, CO_2 combining power 26 mEq/l. Urea clearance and phenolsulfonphthaiein excretion test were within normal limits. Regitine and histamine tests, urine aldosterone excretion and saliva sodium, potassium ratios had been performed on a previous admission and were within normal limits.

The patient made an uneventful recovery during her hospitalization and after the third hospital day was alert and cooperative. She was discharged from the hospital without medication to be followed in the Outpatient Department.

Jerrold Larson, M.D.
Mount Sinai Hospital

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21–29 — and additional information can be obtained by corresponding with — Grand Rounds Editor, Minnesota Medicine.

Train up a child in the way he should go — and walk there yourself once in a while.—Josh Billings



Abstracts, Briefs and Commentaries

COLCHICINE TEST

Improvement of joint symptoms with oral colchicine (10 mg. every two hours until the condition improves or gastrointestinal complaints develop) is used as a means of diagnosing and differentiating gout.

To test the underlying hypothesis, 30 patients with rheumatoid arthritis, classified according to the criteria of the American Rheumatism Association, were given a colchicine trial. The latex fixation test was positive in 24 cases. Serum uric acid determinations were normal except in 1 male and 1 female patient, who had uric acid levels of 6.6 and 6.1 mg./100 ml. respectively.

Of the 30 patients, 10 showed good or excellent temporary subjective relief of symptoms. The intravenous administration of 2 to 3 mg. or colchicine to 14 patients was followed by subjective and objective improvement in 7, whereas a placebo produced improvement in 5 out of 10 patients.

The diagnostic or differential significance of a positive response to colchicine therapy therefore seems to be questionable.

Courtesy of World-Wide Abstracts

Zuckner, J.: New Eng J Med 267/14:682

VIRUSES AND CANCER

Evidence establishing viruses as one cause of cancer in animals is presented, and human studies are critically examined. Emphasis is given to murine leukemia and its potential relevance to man. The electron microscopy, mode of replication, chemistry, immunology, and ecology of the known tumor viruses are discussed, as well as the conditioning factors of heredity, age, hormonal status, and dose. Major hypotheses for mechanisms of viral carcinogenesis are given. Although facts which would establish a viral etiology of human cancer are yet lacking, it would seem biologically unusual if the ability of viruses to induce malignancy in other mammalian species was not also operative in man. Impressive success in animal studies indicates the urgency for intensive exploration of the human problem. An extensive bibliography is included.

Courtesy of References and Reviews
Journal of the American Medical Association

Porter, G.: Arch Intern Med 111:572 May 1963

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UNUSUAL SYNDROMES ASSOCIATED WITH BRONCHOGENIC CARCINOMA

A number of extrapulmonary abnormalities may be associated with bronchogenic carcinoma: metabolic, neuromuscular, skeletal, vascular, and hematologic. While these cannot be considered specific, since they may be associated with non-neo-plastic disease or neoplastic disease in other organs, they constitute important data for clinical assessment, since they may be presenting symptoms of bronchogenic carcinoma or arise during treatment. Neurologic manifestations, for example, do not necessarily imply metastases to the nervous system and inoperability. In some patients with unresectable tumors who have hypercalcemia without bone destruction, subtotal parathyroidectomy may prolong life and well-being. In managing these cases, special attention should be given calcium metabolism defects, water excretion, and blood coagulation.

Metabolic Abnormalities. 1. Cushing's Syndrome. The recent isolation of ACTH from bronchogenic carcinoma of the oat cell type may explain the markedly elevated steroid levels. Weight gain or weight maintenance despite rapid tumor progression, the swift development of Cushing's syndrome features, and the rapidly fatal course of the cancer characterize these cases. 2. Hypercalcemia. Excessively high calcium levels in the blood are a common complication of cancer, usually due to diffuse skeletal metastases. In the situation presenting itself here, however, there is hypercalcemia without apparent bone metastases. Various possible explanations have been put forth, briefly discussed by the author. Hypercalcemia in neoplasms without apparent skeletal involvement can present a puzzling picture, mimicking primary hyperparathyroidism. Symptoms such as loss of appetite, weakness, and vomiting may be blamed on the cancer itself, while the hypercalcemia is ignored. Since the condition is potentially fatal, it should be found and treated with intravenous fluids and steroids even if the tumor is inoperable. In selected cases subtotal parathyroidectomy may increase both the time survival and comfort of the patient even if the tumor cannot be resected. 3. Excessive Antidiuretic Hormone. Some patients with bronchogenic carcinoma suffer from water retention due to continued ADH secretion while the serum is hypertonic. Administration of water brings on hyponatremia and expansion of the extracellular fluid volume, with renal sodium loss due to reduction in aldersterone secretion. Those responsible for management should be alert to this possible complication so that administration of fluids can be put on a rational basis. What might be considered a normal daily requirement may, in one of these patients, lead to a rapid fall in serum sodium concentration with symptoms of severe water intoxication.

Neuropathy. Symptoms of neuropathy may precede the discovery of cancer by as long as three years. In one large series, neuropathy was found in as many as 75 per cent of bronchogenic cancer cases. Such manifestations are not limited to lung cancer, however: other cited reports include the ovary, prostate, breast, rectum, and esophagus. There appears to be no correlation between the severity of the neurological symptoms and the time of discovery, size, type, or location of the tumor. Clinically, the symptoms may be broadly classified by their manifestations as cerebral, corticalcerebellar degeneration, anterolateral or posterolateral column syndrome, peripheral neuropathy, carcinomatous myopathy, and mixed types. 1. Cerebral Type. This type manifests itself as an organic mental syndrome with depression or confusion. 2. Cerebellar Type. Cortical cerebellar degeneration is manifested by ataxia, vertigo, and nystagmus. 3. Column Syn-

Continued

dromes. Anterolateral and posterolateral column syndromes are manifested as amyotrophic lateral sclerosis and combined systemic disease. 4. Peripheral Neuropathy. The peripheral neuropathy may involve the motor nerves alone, the sensory nerves alone, or a mixed type. Ascending paralysis of the Guillian-Barre type is rare in association with lung cancer. 5. Myopathy. Carcinomatous myopathy consists of muscle weakness due to changes in the muscle, which occasionally may present a myasthenic or myotonic clinical picture. Any of the above may appear in combination, giving rise to mixed forms of neuromuscular abnormalities. Surgical removal of the tumor usually has no effect on the neuropathy. In some of the myasthenic cases neostigmine has been reported as helpful, and quinine in the myotonic. Demyelinization and neuronal degeneration are the 2 processes characterizing the pathologic change. Demyelinization may involve the peripheral nerve, posterior root, and posterior column; neuronal degeneration may involve the anterior horns, dorsal root ganglia, and Purkinje cells of the cerebellar cortex.

Bone and Connective Tissue. 1. Clubbing. The incidence of clubbing (thickening of connective tissues about the terminal phalanges) has been reported as about 5 to 10 per cent as an extrapulmonary manifestation of lung carcinoma. It also occurs in other conditions: chronic non-neoplastic pulmonary disease and congenital heart disease, for example. In these latter, however, it is usually asymptomatic; whereas, in carcinoma, it is accompanied by pain, redness, heat, and swelling, with limitation of motion. In some cases it has cleared with surgical removal of the tumor. Since the increased estrogen excretion in these patients returns to normal after surgical removal of the tumor, it has been reasoned that circulating estrogens may account for the overgrowth of vascular connective tissue and increased blood flow to the limbs of patients with hypertrophic osteoarthropathy and carcinoma. Whether or not the tumor itself is a source of estrogen is yet to be determined, as well as the relationship between vagotomy and estrogen excretion. 2. Other. The occurrence of dermatomyositis with cancer is considered by some as a phase of carcinomatous myopathy. The symptoms of scleroderma may precede pulmonary manifestations of tumor, which is usually an alveolar cell carcinoma.

Vascular. Migratory thrombophlebitis with or without cryofibrinogenemia, and non-bacterial thrombotic endocarditis involving the halves of the left heart may cause pulmonary and/or arterial embolization.

Hematologic. 1. Fibrinolytic Purpura. Because fibrinolysis with hypofibrinogenemia and hemorrhagic diathesis have been described in association with bronchogenic carcinoma, it would appear wise to study the status of blood coagulation in such patients before thoracotomy is undertaken. Fibrinogen should be kept available to counteract any bleeding tendency incidental to biopsy or thoracotomy. Hemorrhagic diathesis with hypofibrinogenemia have occurred after manipulation of the lung during such operations. Surgical removal of the neoplasm has resulted in a decrease in plasma fibrinolytic activity with the plasma fibrinogen level returning to normal. 2. Anemia, Polycythemia. Symptomatic hemolytic anemia and polycythemia may occur rarely in association with bronchogenic carcinoma.

Courtesy of Medical Abstract Service
Berwyn, Ill.

Borochow, I.: Georgetown Medical Bulletin: 16:106 November 1962

Continued



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HEMOBILIA

Massive hemorrhage form the billiary tract ("hemobilia") produces a diagnostic triad of severe right upper quadrant abdominal pain, upper alimentary bleeding, and jaundice. The gallbladder is the commonest souree, and stones are the commonest cause. In a patient receiving warfarin for pulmonary embolism, melena occurred, and was found to be due to cholelithiasis, although the prothrombin time was in the therapeutic range. The blood failed to clot in the biliary tract, and pain and jaundice were absent. Hemobilia can be expected to complicate the course of patients on anticoagulant therapy since coronary-artery disease and gallstones often coexist. The infrequency of hemobilia is contrasted with the fact that the presenting complaint of patients with renal calculi is commonly a hematuria.

Courtesy of References and Reviews
Journal of the American Medical Association

Krikler, D., and Marks, C.:
Lancet 1:135 Jan. 19 1963

EPILEPSY

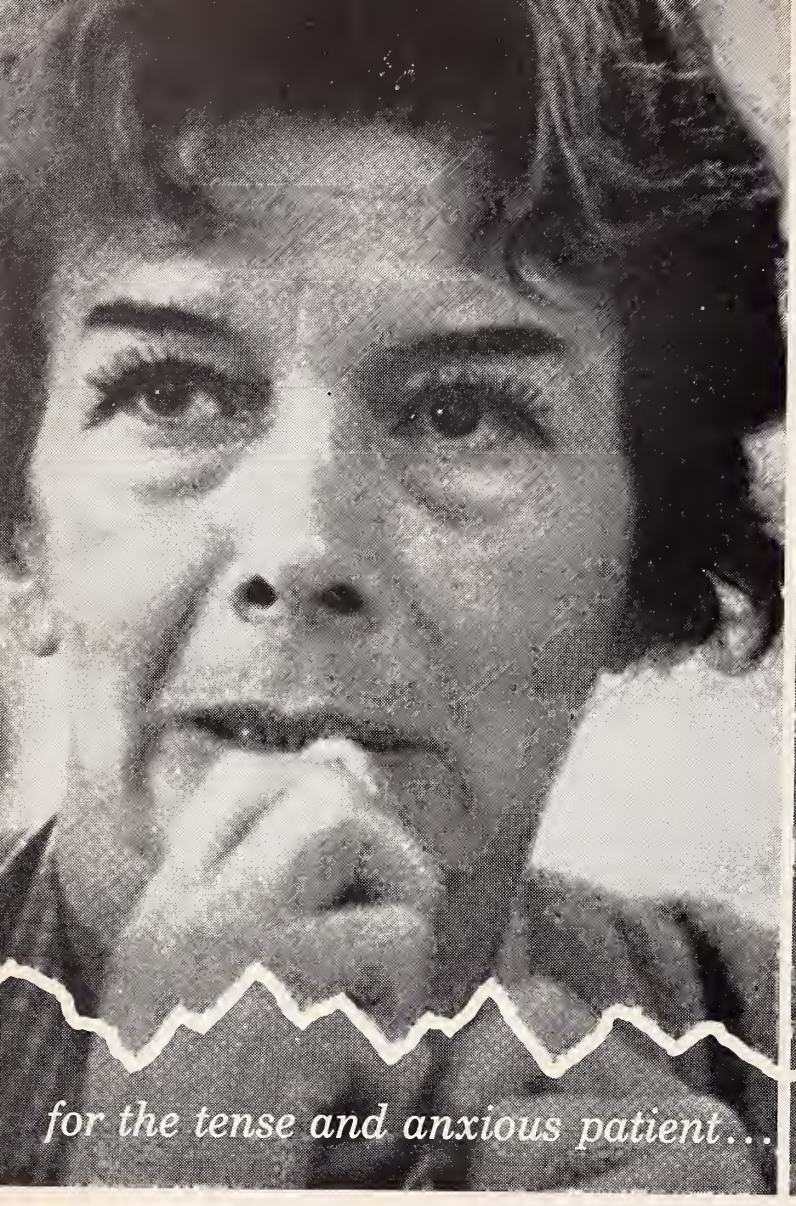
Eighty-eight patients with intractable focal seizures uncontrolled by medication due to non-progressive brain disease of more than one lobe of the brain were treated by hemispherectomy (17 patients) and the remainder by less complete surgical excisions of cortex. In more than one-half of these patients, birth injury was held to be responsible for the brain lesions. Hemispherectomy was performed on patients who had intractable focal seizures and a cerebral hemisphere which was extensively and severely damaged. Independent and useful function of the contralateral hand and incomplete homonymous hemianopia were countra indication to hemispherectomy. Of 16 of 17 persons who had hemispherectomy, only one had no improvement in the occurrence of seizures, two-thirds had no further attacks and the remainder had fewer seizures. Marked improvement of frequency of seizures also occurred in patients with less complete cortical excisions: 1.) Complete absence of seizures in 35 per cent; 2.) complete absence after a few post-operative seizures in another 8 per cent; and 3.) a marked reduction in seizures in 27 per cent. The remainder had no improvement in frequencies of seizures.

This useful study from the Montreal Neurological Institute will be of value to the clinician faced with a young patient who has uncontrolled focal seizures. It should be pointed out that the cases which these authors have treated surgically are less common than those cases of intractable seizure arising from both cerebral hemispheres not amenable to surgery. The excellent results that these authors achieved is probably due to good selection of cases and meticulous operative technique.

Peter J. Dyck, M.D.
Rochester, Minnesota

Rasmussen T. and Gossman H.: Epilepsy Due to Gross Destructive Brain Lesions. Neurology, 13 No. 8:659 August 1963.

Continued





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TREATMENT OF CYANOTIC HEART DISEASE

The physiologic basis for partial right heart bypass (superior vena cava — right pulmonary artery anastomosis) is the low resistance in the normal pulmonary arteriolar-capillary network which allows even the minimal pressure in the superior vena cava to propel the blood through the lung. Complete right heart bypass by anastomosing both cava to the pulmonary arteries is not feasible because of the secondary portal hypertension, splanchnic bed hypervolemia, and ascites.

The authors repeat their experience in treating 25 cyanotic heart patients with normal or decreased pulmonary vascular resistance. They list five advantages over the classical systemic artery — pulmonary artery anastomosis (Potts; Blalock procedure):

1. No resulting increase in left heart work.
2. Low pressure shunt does not lead to increased pulmonary vascular resistance.
3. Decreased blood flow into right heart and thus less work.
4. Shunted blood is venous and not a mixture of arterial and venous.
5. Theoretically, the anastomosis could be left intact at time of complete heart repair.

The technique of the anastomosis is adequately described and portrayed. No artificial shunts are necessary. The electroencephalogram is the most useful monitor. No heparin is used postoperatively. Trauma to the veins of the upper extremities are avoided pre and postoperatively to lower the risk of clotting at the anastomosis.

Pressure in the superior vena cava rises temporarily following the anastomosis. Exercise did not elevate this pressure after recovery. The physiology is discussed.

The majority of the 25 patients treated had Tetralogy of Fallot (14 individuals) or tricuspid atresia (7 patients). Of these 21 patients, two died during or following the procedure. The age ranged from 2 months to 27 years.

The authors explained their indications in treating the patient with Tetralogy. Survivors have had moderate to marked improvement.

The mortality and morbidity from the procedure is analyzed for all cases.

The authors aptly discuss the problem of the young patient with Tetralogy. Risk of corrective surgery is high and the systemic artery to pulmonary artery anastomosis not without immediate and late physiologic problems. The use of superior vena cava to pulmonary artery anastomosis is attractive in select individuals.

J. T. Grismer, M.D.
Minneapolis, Minn.

Young, W. G., Houck, W. S., Spach, M. S.: "Superior Vena Cava — Right Pulmonary Artery Anastomasis in Cyanotic Heart Disease." Ann Surg 157:894, June 1963

Sweat Chloride in Bronchial Disease and Cystic Fibrosis

The consistent elevation of the sodium and chloride content of the sweat in patients with cystic fibrosis (mucoviscidosis), first described by di Sant 'Agnese and associates in 1953 has clearly established the usefulness of the sweat test as a diagnostic procedure in fibro-cystic children. On the basis of increased sweat electrolyte levels in adults, it has been suggested that the existence of asymptomatic "carrier" cases in relatives of patients and "partial" forms in patients with

Continued

chronic pulmonary disease exists. Because the reliability of the sweat test in adults has not been clearly established, significance of such observations remains uncertain.

The authors of this study attempt to correlate sweat chloride levels with clinical evidence of cystic fibrosis in a selected group of patients with chronic bronchial disease. Nine patients had sweat chloride values exceeding two standard deviations from the mean of the controls. Three of the patients had lobectomies or segmental resections for presumed bronchiectasis. None who showed "cylindrical" bronchiectasis obtained permanent relief. Three of the patients experienced significant episodes of diarrhea, two of which suggested malabsorption syndromes. Six patients gave positive histories of significant respiratory disease in close relatives.

The authors conclude from the clinical findings and family histories of these nine bronchitic patients that their cases suggested the individuals had partial forms of cystic fibrosis. Changes in dietary salt intake with or without deoxycorticosterone altered sweat chloride concentration in the control and bronchitic subjects, but not in one patient who had established cystic fibrosis. Because of the various factors which may alter concentration of sweat electrolytes in adults, correlation with clinical findings is needed before attributing, in isolated instances, sweat chloride elevation to the presence of cystic fibrosis.

Harold D. Kletschka, M.D.
Syracuse, N. Y.

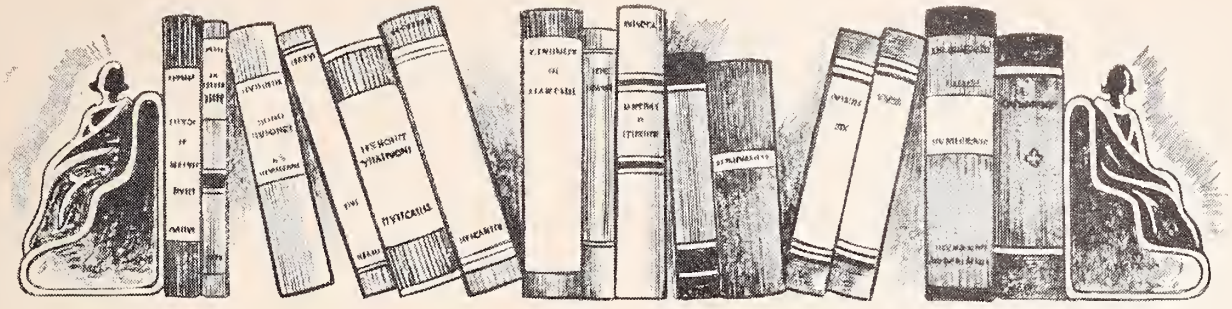
Coates, E. O., Jr., and Brinkman, G. L.: Sweat Chloride in Patients with Chronic Bronchial Disease and its Relation to Mucoviscidosis (Cystic Fibrosis). Amer Rev Resp Dis 87:673, May 1963.

FINGER-TIP INJURIES

The results achieved by 6 main types of repair in 235 patients with tractile-pad avulsion of the finger tip were compared after at least one year from the time of the repair. Primary closure by shortening of the bone and use of local flaps had been applied in 66 cases, free split-thickness skin grafts in 53, full-thickness skin graft in 59, cross-finger flap in 20, palmar flap in 21, and distant pedicle flaps from the abdomen in 16. Subjective complaints from the patients and performance in objective testing were the criteria for evaluation of the results. An over-all analysis of these results indicated that there were fewer subjective complaints and more normal results by objective testing among those treated by cross-finger flap and those treated by palmar flap technique, but 38% of the patients in the latter group had joint stiffness. Patients treated with abdominal pedicle flaps had many complaints and poor objective testing results, but their injuries could not have been repaired by any other technique. Subjective complaints were numerous among those treated by full-thickness free grafts, and the majority of them avoided using their repairs in the picking-up test. Complaints of tenderness associated with a low pain threshold were frequent among those with split-thickness grafts, where most of the pigmentation occurred. It is concluded that cross-finger flap repair achieves the best long-term results in cases of major tactile-pad avulsion of the finger-tip, although more time is lost from work during the repair period. It is also recommended that more critical criteria be established for follow-up studies of such results.

Courtesy of References and Reviews
Journal of the American Medical Association

Sturman, M., Duran, R.
J Bone Joint Surg Amer 45 A:289 March 1963



Book Reviews

ATLAS OF VASCULAR SURGERY — Hershey and Calman, C. V. Mosby of St. Louis, $18.00, 307 pages.

This book encompasses the field of vascular surgery exclusive of the heart, intracranial, and intrathoracic vessels. The procedures are clearly and thoroughly illustrated in black and white on high quality pâper. Each chapter has a short introduction in which the signs and symptoms of disease, and the indications and contraindications for surgery are set forth. The authors then lead the reader step by step through each operation.

This atlas should be welcomed by surgery residents and trained surgeons alike. It is well written and specific enough to be a real help in preparing for each operation. The reader will likely discover areas where controversial opinions are expressed but this reflects, perhaps, the rapidly changing field of vascular surgery moreso than it does a deficiency in the text itself.

Harrison H. Farley, M.D.
Minneapolis, Minn.

HANDBOOK OF ORTHOPAEDIC SURGERY — Shands, Raney and Brashear, C. V. Mosby Co., $11.50, 591 pages.

The sixth edition of this handbook retains many of the popular features of previous editions. It is concise and simplified; yet, it is well illustrated with photographs, x-rays, and drawings. The flexible cover should appeal to the medical student for whom the book is expressly designed. An excellent seventy-page up to date bibliography is included with a chapter to chapter breakdown. This definitely broadens the range of the book's applicability.

Harrison H. Farley, M.D.
Minneapolis, Minn.

AN ATLAS OF CONGENITAL HEART DISEASE — F. E. Sherman, Lea and Febiger, publishers, Philadelphia, 1963, 303 pages.

This book is a summation of the experience with pathologic material in 503 cases from the Museum of Congenital Heart Disease at the Childrens Hospital of Pittsburgh. The museum colllection began in 1954.

There is considerable text material presented and the book is not strictly speaking, an atlas. The various congenital heart and great vessel malformations among the 503 specimens are presented and most of the anomalies are well illustrated with photographs and diagrams. There is little attempt to correlate anatomic abnormalities with clinical findings during life. There is a brief but good chapter on the method of examination of the heart at autopsy.

As stated by the author, the book is intended as an introduction and quick reference to the pathology of congenital heart disease rather than a comprehensive treatment of the subject for the serious cardiologist.

Alvin L. Schultz, M.D.
Minneapolis, Minnesota

PHYSICAL DIAGNOSIS — J. A. Prior and J. S. Silberstein, C. V. Mosby Co., St. Louis, 1963, 455 pages, price $8.50.

Although primarily written for medical students, this book is worthwhile reading for all clinicians. The opening sections on history taking and the mental examination logically develop the reasons for careful and painstaking interrogation of the patient. The authors then go on in subsequent chapters to present methods and techniques for the examination of all body systems relating pathology to normal reference points. There are particularly good chapters on examination of the eye, female genitalia, breasts and the nervous system. A chapter on examination of pediatric patients is included.

The book is comprehensive yet not lengthy, abundantly illustrated, and well written.

Alvin L. Schultz, M.D.
Minneapolis, Minnesota

OUTLINE OF ELECTROCARDIOGRAPHY — H. H. Friedman, Blakiston Division, McGraw-Hill Co., New York, 1963, 300 pages.

The author presents in brief outline form the material given in courses in electrocardiography for medical students and physicians at the University of Colorado Medical Center.

The text is comprehensive although limited in scope. There are excellent, easy to read, sections on electrophysiology of the heart and basic concepts underlying electrocardiography. The normal electrocardiogram is described and in subsequent chapters electrocardiographic manifestations of cardiac disease are presented with adequate illustrations and diagrams. There is brief mention of spatial vector cardiography.

The book serves the purpose of a quick reference text and an introduction to the field of standard electrocardiography. It is well written and makes clear, easy reading, considering the complicated nature of the subject presented.

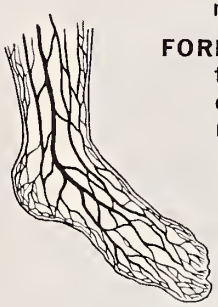
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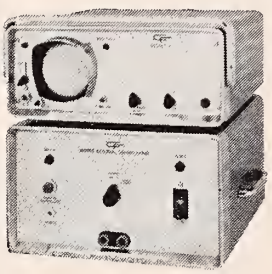
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Special Articles

A Summary of Acid-Base Balance

- **Part II**
- **Pathologic States**

SEYMOUR HANDLER, M.D.*
THOMAS SEMBA, M.D.*
Minneapolis, Minn.

(Part I appeared in October issue of Minnesota Medicine)

Proper assay of acid-base disturbances requires determination of the variations of pH, CO_2 tension and true bicarbonate in blood. The unknown values of the Henderson-Hasselbalch equation

$$pH = pK + \log \frac{[HCO_3]}{\alpha \cdot pCO_2}$$

are most conveniently found by the method of Astrup.* Application of the values to the Davenport scheme will translate most acid-base problems into a simple picture.

First, the pH is determined on anaerobically collected arterial, capillary, or venous blood. The pCO_2 is still unknown. Second, the blood is then handled aerobically and equilibrated with a high CO_2 - high O_2 mixture of known composition and the pH is determined. The pH will be low. Third, the pH is similarly determined on the blood after equilibration with a low CO_2 - high O_2 mixture. The pH will be high.

On a graph with log pCO_2 on the vertical axis and pH on the horizontal axis (Fig. 3), a line is drawn between the high pCO_2 low pH point (1) and the low pCO_2 high point (2). This line gives the buffer slope of the blood sample. The point (A) at which the initial anaerobically determined pH intersects the buffer line is at the pCO_2 (B) of the original anaerobic sample. With the pH and pCO_2 now known, the bicarbonate is readily calculated from the equation or obtained from a prepared table of values.

Respiratory Acidosis

The normal values of the Henderson-Hassel-

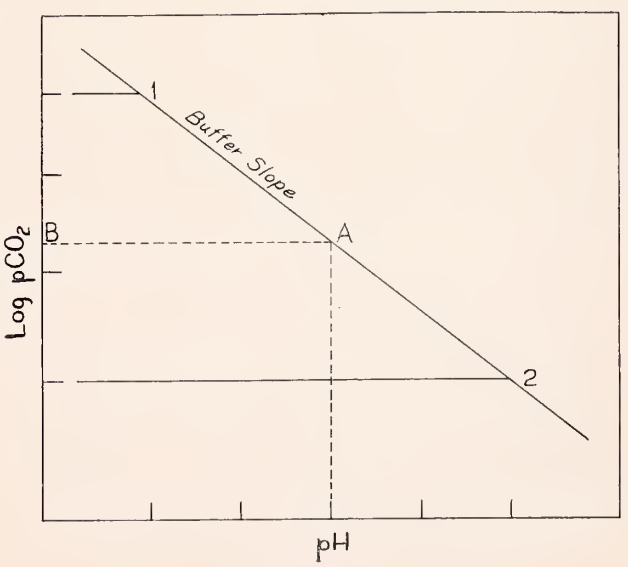


Fig. 3.

Continued

*Pathology Service, North Memorial Hospital
*Astrup Micro Equipment manufactured by Radiometer of Copenhagen

balch equation are pH 7.4, $[HCO_3^-]$ 24mM/L, and pCO_2 40 mm Hg. (point A, fig. 4).

Decreased pulmonary ventilation causes elevation of alveolar and plasma pCO_2. The pH in uncompensated respiratory acidosis (point B) is low because the elevated pCO_2 increases the carbonic acid concentration. The $[HCO_3^-]$ is elevated at the higher pCO_2 tension (point B) because of hemoglobin buffering of CO_2 mediated through the chloride shift. Uncompensated respiratory acidosis may occur during anesthesia, barbiturate intoxication, and neurological disorders acutely depressing respiration. Chronic respiratory acidosis occurs in hypoventilation due to generalized pulmonary disease, sedative drugs, the Pickwickian syndrome (extreme obesity), and carbon dioxide inhalation.

In acute uncompensated respiratory acidosis, release of CO_2 and restoration of the pCO_2 to normal will return the pH to normal. Compensation for chronic respiratory acidosis is metabolic and occurs through increased HCO_3^- reabsorption and H^+ excretion by the kidney. An increase of $[HCO_3^-]$ proportionate to the elevation of pCO_2 will result in a more normal pH (point C). Since metabolic compensatory mechanisms begin while chronic respiratory acidosis develops, the compensatory path is a combination of a rising pCO_2 and rising $[HCO_3^-]$ (path AC). Should the high pCO_2 in compensated respiratory acidosis suddenly return to normal (point D), $[HCO_3^-]$ will remain in excess. The resultant metabolic alkalosis will be corrected by renal excretion of HCO_3^- (path DA). In most cases of chronic compensated respiratory acidosis, any improvement in pulmonary ventilation is usually gradual as CO_2 is released and HCO_3^- is excreted. A transition through metabolic alkalosis is not common as the normal pH is restored.

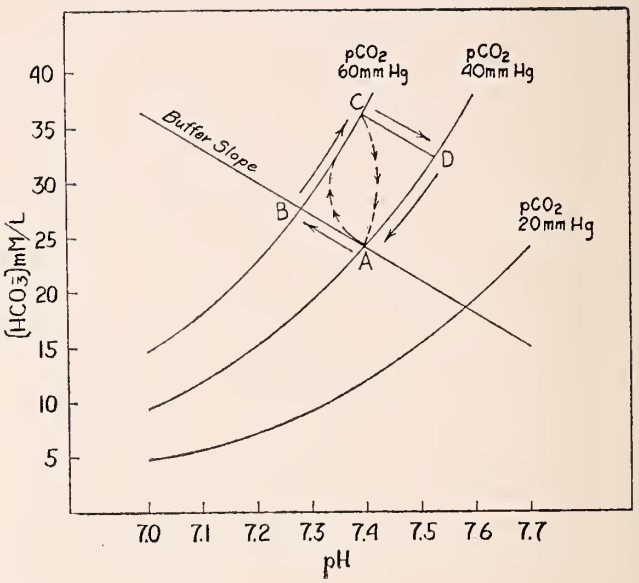


Fig. 4. Respiratory Acidosis

Respiratory Alkalosis

The most common cause of respiratory alkalosis (fig. 5) is psychogenic hyperventilation. Other etiologies of hyperventilation are fever, early salicylate intoxication, cirrhosis of the liver, intracranial lesions, mechanical respirators, and pregnancy. Hyperventilation reduces alveolar and plasma pCO_2. $[HCO_3^-]$ is decreased at the lower pCO_2 (point B) because less CO_2 is buffered by hemoglobin. Loss of carbonic acid elevates the pH. Uncompensated respiratory alkalosis (point B) may occur if hyperventilation is rapid and severe. Correction of hyperventilation and restoration of pCO_2 to normal will return the pH to normal.

If respiratory alkalosis is prolonged, compensation is metabolic. Low pCO_2 is accompanied by renal loss of HCO_3^- (point C). However, most of the HCO_3^- is depressed by buffering of the compensatory metabolic accumulation of lactic and pyruvic acids. H^+ is conserved by the kidney. Since metabolic compensation begins while

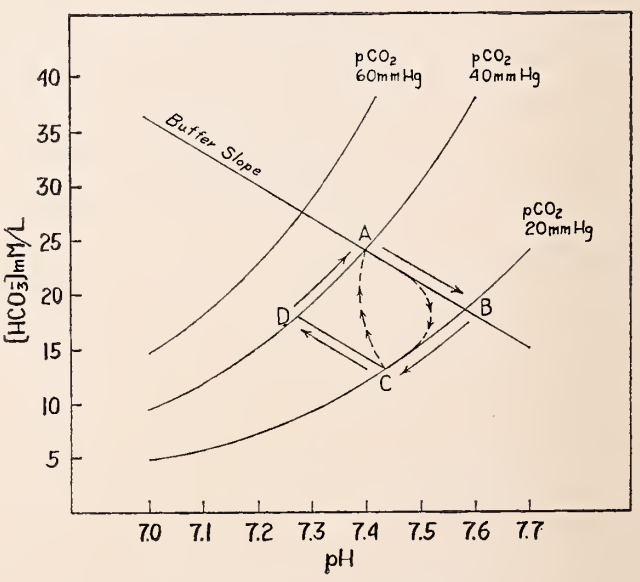


Fig. 5. Respiratory Alkalosis

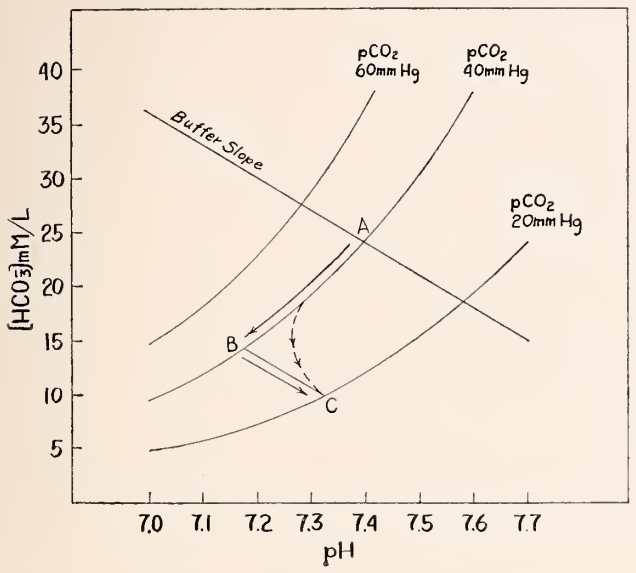


Fig. 6. Metabolic Acidosis

respiratory alkalosis is developing, the compensatory path is a combination of respiratory alkalosis and metabolic acidosis (path AC). Respiratory alkalosis induced by the hyperventilation of anesthesia or mechanical respirators may be partially compensated. When the pulmonary ventilation is rapidly or suddenly returned to normal, the plasma pCO_2 returns to 40 mm Hg and leaves the patient in a state of metabolic acidosis (point D). Changes in pCO_2 may be rapid whereas reabsorption of HCO_3^- and excretion of acid through the kidney are relatively slow. Therefore, the return to normal (path CA) in compensated respiratory alkalosis often involves transit through a period of metabolic

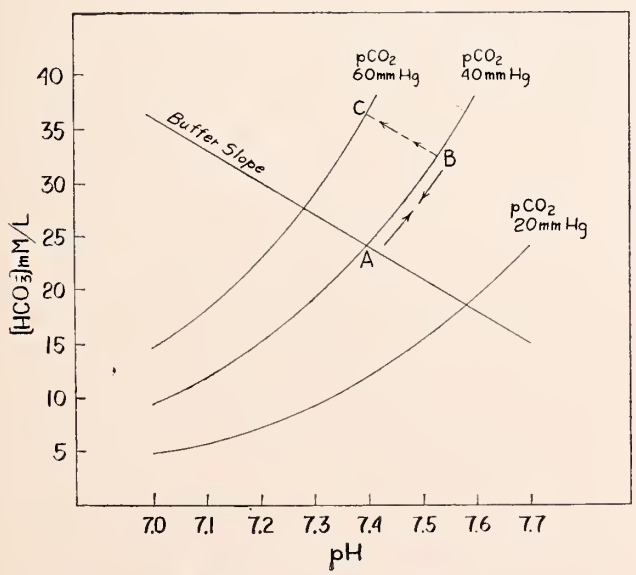


Fig. 7. Metabolic Alkalosis

acidosis, with a low $[HCO_3^-]$ and elevated blood lactic and pyruvic acids.

Metabolic Acidosis

Metabolic acidosis is due to the addition of H^+ or loss of HCO_3^-. This most common type of acid-base disturbance occurs frequently in uncontrolled diabetes mellitus, simple starvation, diarrhea, renal failure, and therapy with acidifying salts such as ammonium chloride. The $[HCO_3^-]$ is lowered from buffering the addition of H^+ (point B, Fig. 6).

Compensation is by increased renal excretion of H^+ as NH_4^+ or $H_2PO_4^-$ and by release of carbonic acid by hyperventilation. In severe metabolic acidosis, this hyperventilation is more familiar as Kussmaul breathing. As hyperventilation proceeds, the $[HCO_3^-]$ and pCO_2 decline (path BC), returning the PH to near normal. It is of interest to note that despite a further lowering of $[HCO_3^-]$ with compensation, the patient's pH is improved. The CO_2 combining power without the pH and pCO_2 may be misleading. Although a lowerd CO_2 combining power is usually considered evidence of acidosis, the same low value may occur in respiratory alkalosis. Since respiratory compensation begins early in the development of metabolic acidosis, the compensation is a combined metabolic acidosis and respiratory alkalosis (path AC). The return to normal would be quite variable and is dependent on therapy.

Metabolic Alkalosis

Loss of acid or addition of alkali results in metabolic alkalosis. The most common causes are loss of gastric content from vomiting or suction and iatrogenic administration of sodium bicarbonate orally as an antacid. An additional significant cause of metabolic alkalosis is potassium depletion.

The loss of H^+ causes the reaction

$$H^+ + HCO_3^- \rightleftharpoons H_2CO_3$$

to shift to the left as one of the reaction products, H^+, is removed from the reaction, leaving the HCO_3^- in excess. Since respiration is not significantly altered in the development of metabolic alkalosis, $[HCO_3^-]$ increases (point B, Fig. 7) while the pCO_2 remains normal. The blood pH is elevated because $[HCO_3]$ is increased.

Continued

Respiratory compensation for metabolic alkalosis is insignificant. To return the buffer fraction to near 20:1, hypoventilation should occur to elevate the pCO_2 (point C). The need of the body for oxygen precludes hypoventilation and, therefore, compensation must be metabolic. In addition, metabolic alkalosis is commonly associated with K^+ depletion. The K^+ may be lost coincident to H^+ in gastric content. K^+ also migrates intracellularly in alkalosis, further lowering the serum $[K^+]$. Since respiratory compensation is not significant, the metabolic compensation requires excretion of HCO_3^- reabsorption of H^+ and K^+ replacement.

Examples of each of the four basic acid-base disturbances will illustrate the importance of an understanding of acid-base balance in the management of common clinical conditions.

Pyloric Obstruction or Gastric Suction (Metabolic Alkalosis)

Metabolic alkalosis due to prolonged loss of gastric content has been called "hypochloremic alkalosis." The implication that the loss of chloride in gastric juice causes alkalosis is incorrect and misleading. The loss of H^+ in gastric juice causes a further dissociation of the omnipresent H_2CO_3 (or dissolved CO_2), leading to increased $[HCO_3]$. To maintain electrical balance in the anion space, serum $[Cl^-]$ secondarily increases.

Potassium ion, more concentrated in gastric juice (10-20 mEq/L) than serum (5 mEq/L) is lost in significant quantities in prolonged vomiting or gastric suction. The gastric loss of K^+ is compounded by the continued renal loss of K^+. The kidney is relatively inefficient at conserving potassium except in extreme depletion. The occurrence of a relatively acidic urine in hypokalemic states further contributes to the severity of metabolic alkalosis. The exchange of Na^+ in the distal tubular lumen for H^+ or K^+ in the tubular cells is altered in hypokalemia. The potassium-deficient renal cell retains K^+ and preferentially excretes H^+ in exchange for Na^+, creating "paradoxical aciduria." A further contributing factor of potassium depletion in the maintenance of metabolic alkalosis is the migration of H^+ into the body cells in exchange for K^+. A stage is reached in hypokalemic alkalosis where hypokalemia contributes to alkalosis and alkalosis contributes to hypokalemia. To break the cycle only vigorous replacement of K^+ will correct the metabolic alkalosis.

If surgical correction of gastric obstruction is attempted without prior correction of the hypokalemic alkalosis, an irreversible state may ensue. Hypokalemia, abetted by surgical manipulation, will contribute to further gastrointestinal ileus and increased loss of potassium into the bowel. The resulting severe potassium depletion may exert a direct toxic effect on the kidney. Decreased glomerular filtration rate and altered renal tubular function may cause postoperative uremia.

A similar syndrome of hypokalemic alkalosis occurs in primary aldosteronism.

Diabetic Ketoacidosis (Metabolic Acidosis)

Hyperglycemia in uncontrolled diabetes mellitus causes intracellular dehydration due to the osmotic effect of increased glucose in the extracellular fluid. Increased fat and protein catabolism for energy production results from inadequate carbohydrate metabolism. Intermediary metabolites of fat metabolism, B-hydroxybutyric acid and acetoacetic acid, accumulate and increase plasma $[H^+]$ and depress the pH. The buffer action of HCO_3^- results in depression of plasma $[HCO_3]$. Compensation for metabolic acidosis (Fig. 6) is respiratory, increased ventilation causing a lower pCO_2 and a return of pH to near normal. Respiratory compensation for metabolic acidosis (point C, Fig. 6) includes further reduction of plasma $[HCO_3^-]$. If the CO_2 combining power were the only parameter of severity of acidosis, the further reduction would imply worsening acidosis, whereas in fact, the patient is improved with a near normal pH.

In addition to insulin, large volumes of hypotonic electrolyte solutions are required to correct intracellular dehydration. Potassium salts are added early in fluid replacement to repair the severe potassium depletion. Serum $[K^+]$ levels early in the acidotic phase may be misleadingly normal or even elevated in the face of severe total body K^+ depletion. Insulin therapy and correction of acidosis may rapidly unmask the hidden potassium deficit with severe hypokalemia (under 2mEq/L) and paralysis.

Salicylate Intoxication (Respiratory Alkalosis and Metabolic Acidosis)

Salicylates exert a primary effect on the respiratory center, causing hyperventilation. Salicylates also increase the metabolic rate and CO_2 production but the ventilatory effect predominates. Hyperventilation rapidly lowers alveolar and plasma pCO_2, causing primary respiratory alkalosis (point B, fig. 5). Compensation is metabolic. Lowering of the plasma $[HCO_3^-]$ is partially due to increased renal excretion of HCO_3^-. Most of the $[HCO_3^-]$ depression is associated with an expansion of pyruvate and lactate in the anion space. Salicylate intoxication in children is associated with gastrointestinal upset and starvation, rapidly depleting carbohydrate reserves. The utilization of fats and protein for energy production causes accumulation of organic acids and metabolic acidosis (point D, fig. 5). The transition from respiratory alkalosis to metabolic acidosis may occur rapidly in children, so that the primary alkalosis is not seen. Correction is therefore generally directed against metabolic acidosis and includes bicarbonate replacement.

Pulmonary Emphysema (Respiratory Acidosis)

Respiratory acidosis in pulmonary emphysema is due to CO_2 retention in the dilated alveoli. Uncompensated respiratory acidosis (point B, fig. 4) occurs in acute pulmonary CO_2 retention. Chronic CO_2 rentention in pulmonary emphysema results in metabolic compensation (point C, fig. 4) by renal reabsorption of HCO_3^- elevated plasma $[HCO_3^-]$ and near normal pH.

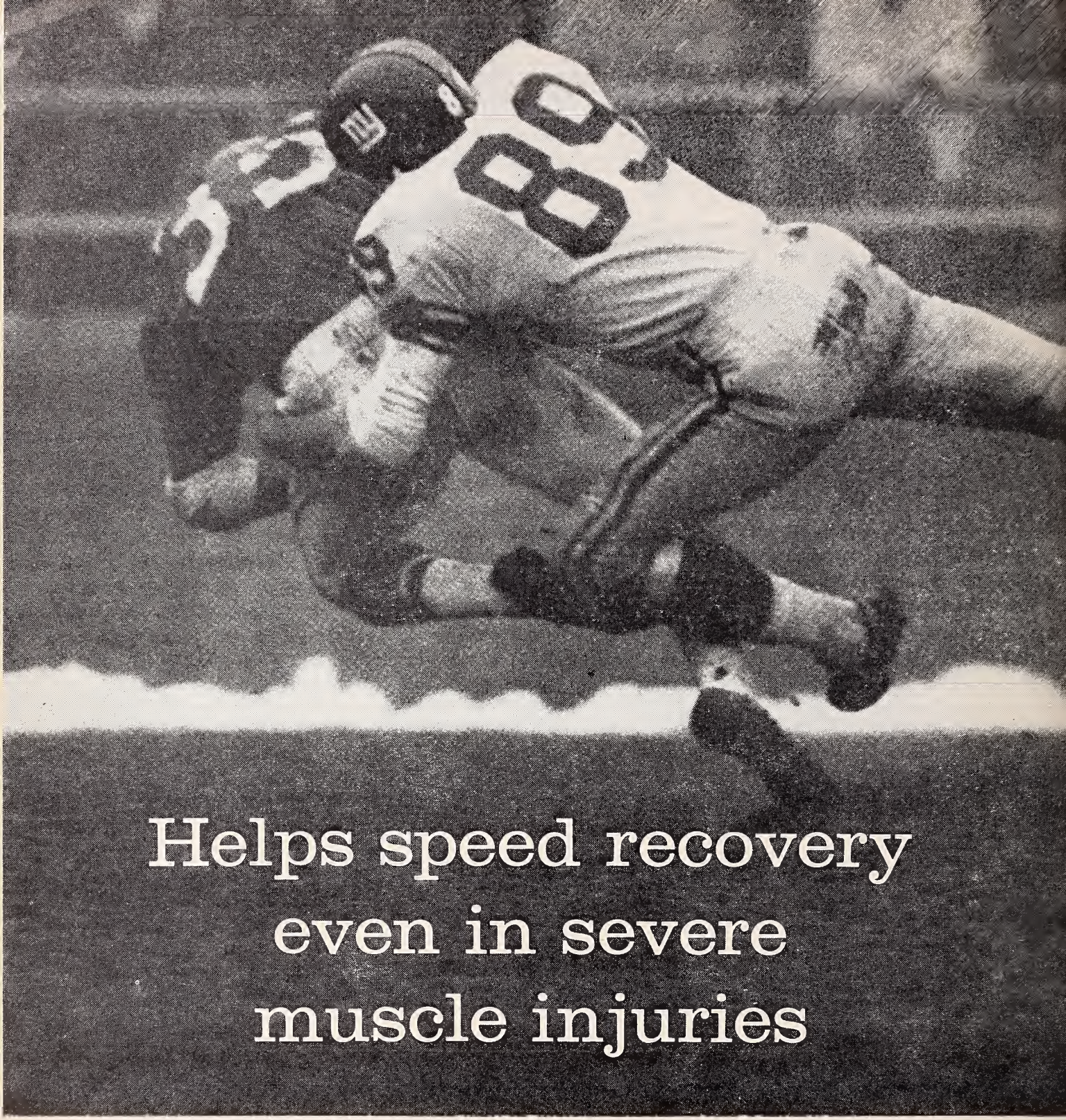
Superimposed pulmonary infection or administration of respiration-depressing drugs results in increased CO_2 retention and a rapid worsening of respiratory acidosis. Renal compensation in patients with previously compensated respiratory acidosis is slow and the exacerbation of respiratory acidosis often constitutes a medical emergency. Efforts to rapidly improve pulmonary ventilation may be life-saving.

Summary

Appreciation of the central role of H^+ in acid-base disturbances is mandatory. The concentrations of H^+, HCO_3^- and pCO_2 are the best guides of acid-base balance. The Astrup apparatus is an accurate instrument to determine the three values. Application of the values to the Henderson-Hasselbalch equation or to the Davenport diagram clearly defines the patient's acid-base status. Electrolyte changes in acid-base problems are secondary to H^+ changes and the concept of defining cations as "bases" and anions as "acids" is unsound and should be abandoned.

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Meetings And Announcements

NOVEMBER

Hahnemann Medical College & Hospital Symposium "Aging of the Lung: Perspectives" — November 18-20, Sheraton Hotel, Philadelphia, Pa. Contact: Sage Rosen, Hahnemann Medical College, 230 No. Broad Street, Philadelphia.

57th Annual Meeting of the Southern Medical Association, November 18-21, New Orleans, La. Contact: The Association.

9th Congress of the Pan Pacific Surgical Association, November 5-13, in Honolulu, Hawaii. Also, First Pan-Pacific Mobile Educational Lecture Seminar, November 13-December 10 in New Zealand, Australia, Thailand, Philippines, Hong Kong and Japan. Write: F. J. Pinkerton, M.D., Suite 236, Alexander Young Building, Honolulu, Hawaii.

American Society of Cytology 11th Annual Meeting, The Neil House; Columbus, Ohio, November 7-9. Contact: Warren R. Lang, M.D., 1012 Walnut Street, Philadelphia, Pa.

American Society of Cytology Meeting, Penn Sheraton Hotel, Pittsburgh, Pa. November 12-14. Contact Warren R. Lang, M.D.; 1012 Walnut Street, Philadelphia, Pa.

National Society for Crippled Children Convention, November 22-25, Palmer House, Chicago. Contact: Society, 2023 West Ogden, Chicago.

November 5-8 International Symposium on the Baboon and Its Use as an Experimental Animal, El Tropicano Hotel, San Antonio. Write: Richard Smith; Southwest Research Center, San Antonio, Texas.

American College of Physicians Sectional Meeting, November 21-23 in Detroit, Michigan, at the Sheraton-Cadillac Hotel. Contact: The College, 4200 Pine Street, Philadelphia.

22nd Annual Meeting of the American Academy of Dermatology. November 30-December 5, in Chicago. Contact: Academy, 420 Lexington Avenue, New York, New York.

American Academy for Cerebral Palsy, Dallas-Sheraton Hotel, Dallas, Nov. 24-27. Sec: Joseph D. Russ, M.D., 1520 Louisiana Ave., New Orleans 15.

American College of Chest Physicians (interim meeting), Portland, Ore., Nov. 30-Dec. 1. Exec. Dir.: Murray Kornfeld, 112 E. Chestnut, Chicago 11.

DECEMBER

American Medical Association 17th Clinical Meeting in Portland, Oregon, December 1-4, in Portland's new Memorial Coliseum. Contact: AMA-Chicago.

American College of Chest Physicians postgraduate course "Recent Advances in the Diagnosis and Treatment of Diseases of the Heart and Lungs" Los Angeles, December 2-6. Contact: Murray Kornfeld, 112 E. Chestnut St., Chicago.

American College of Physicians postgraduate courses:

Dec. 2-6 Advances in the Medical Aspects of Cancer — Francis Delafield Hospital, New York.

Dec. 2-6 Psychiatry for the Internist — Los Angeles County General Hospital, Los Angeles.

Dec. 9-13 Environmental Medicine — Massachusetts General Hospital, Boston, Mass.

Contact: College, 4200 Pine St., Philadelphia

American Society of Hematology, Statler Hotel, Washington, D. C., Dec. 9-10. Exec. Sec.: Wayne Rundles, M.D., Duke University Medical Center, Durham, N. C.

Association for Research in Nervous and Mental Diseases, Roosevelt Hotel, New York City, Dec. 6-7. Exec. Sec.: Rollo J. Masselink, M.D., 700 W. 168th St., New York 32.

Association for Research in Ophthalmology, Iowa City, Dec. 1-3. Sec.-Treas.: Samuel J. Kimura, M.D., 1500 Fifth Ave., San Francisco 22.

International Convention of Missionary Medicine, Wheaton, Ill., Dec. 27-30. Info: Christian Medical Society, 1122 Westgate, Oak Park, Ill.

International Symposium on Hemophilia, Sheraton-Park Hotel, Washington, D. C., Dec. 7-8. Chmn: Kenneth M. Brinkhous, M.D., Dept. of Pathology, School of Medicine, University of North Carolina, Chapel Hill.

Continued on page 1189

17th CLINICAL MEETING

PORTLAND, OREGON DECEMBER 1-4, 1963

For the first time in 34 years, the American Medical Association returns to Portland—America's newest convention city—with a four-day program of compelling interest to every physician regardless of specialty.
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Medical Economics

TESTIFYING IN COURT?

Here are Eighteen Do's and Don'ts for Physician Expert Witnesses

Eighteen "Do's" and "Don't's" when testifying in court were emphasized at the recent Medicolegal Symposium of the AMA at Miami Beach, Florida. All of them can serve as useful guides to any physician who is to appear as an expert witness in a court proceeding.

1. Do take the role of the medical witness seriously. The courtroom is a place in which practical men are engaged in the serious work of endeavoring to administer justice. The role of the medical witness is a key one in this endeavor.

2. Don't agree to or accept compensation for your services contingent upon the outcome of litigation. This practice is unethical and its disclosure would be apt to destroy the value of your testimony.

3. Do insist on preparation for your testimony in consultation with the attorney for the party who called you as a witness. He should advise you on what to expect on cross-examination. You have a right to consult with the party and his attorney about the case, so don't be embarrassed if asked about such consultation.

4. Don't act as an advocate or partisan in the trial of the case. If the attorney for the party who calls you as a witness needs the advice or guidance of a doctor during the trial, let him employ another doctor. Disclosure of partisanship of a witness strongly tends to discredit his testimony.

5. Do be as thorough as is reasonably necessary under the circumstances in examining a party in preparation for trial. Exhaustion of all possible tests and procedures may not be required, but be prepared to justify any omissions.

6. Don't exaggerate. Any attempt to puff up your qualifications or to elaborate the extent of the examination you have made is apt to be exposed, to your embarrassment.

7. Do inform the attorney for the party who called you as a witness of all unfavorable information developed by your examination of the party, as well as the favorable information.

8. Don't try to bluff. If you don't know the answer to a question, don't guess. If you guess wrong, you may be falling into a trap.

9. Do be frank about financial arrangements with the party who called you as a witness, with respect to your compensation for both treatment given and services in connection with the litigation.

10. Don't regard it as an admission of ignorance to indicate that your opinion is not absolutely conclusive or that you don't know the answer to a particular question. Honesty may frequently require testimony of this nature.

11. Do answer all questions honestly and frankly. Any display of embarrassment or reluctance to answer will tend to discredit your testimony.

12. Don't use medical terminology which will not be understood by the jury, the attorneys, or the judge. If technical terms are unavoidable, explain them the best you can in the language of the layman.

13. Do be willing to disagree with so-called authorities if you are convinced that they are wrong. If you have sound reason for disagreement, the contrary opinion of authorities will not necessarily discredit you.

14. Don't be smug. A jury is quite likely to react adversely to an attitude of this nature. A modest attitude on the part of a witness is apt to elicit a more favorable response. Leave it to the attorney to bring out your special qualifications.

15. Do be courteous no matter what the provocation. If a cross-examining attorney is discourteous to you, this is apt to win sympathy for you from the jury, provided that you don't descend to the same level.

16. Don't lose your temper. If a cross-examining attorney can provoke you to a display of anger or sarcasm, he has already substantially succeeded.

17. Do pause briefly before answering a question asked on cross-examination, to give the other attorney an opportunity to object to the question if he so desires. Taking a moment for deliberation before answering a question does not indicate uncertainty or embarrassment.

18. Don't allow yourself to be forced into a flat "Yes" or "No" answer if a qualified answer is required. You have a right to explain or qualify your answer if that is necessary for a truthful answer.



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Woman's Auxiliary

Members Learn About Auxiliary and Medicine at Fall School of Instruction

How can a doctor's wife serve and communicate in the community and in the Auxiliary?

Answers to that question were sought at the Fall School of Instruction of the Woman's Auxiliary to the Minnesota State Medical Association, September 25 in the Raddison Hotel, Minneapolis. Mrs. Leo W. Fink, president, led the meeting attended by more than 100 Auxiliary members to learn about medicine, the Auxiliary and SAC — the Serve And Communicate national program.

The day's business began with meetings of the Regional Advisers and the County Officers, followed by the Board meeting. The members learned about the Auxiliary's objectives for the year through the instructive talks presented by state chairmen and officers. Each of the 35 Auxiliaries throughout the state was urged to adapt the committee programs to the needs of their own communities.

Two speakers highlighted the day of information and discussion. Dr. David Thorsen, child psychiatrist from Wilder Child Guidance Clinic in St. Paul, described the kinds of cases he helps and explained the functions of child guidance clinics.

He said that most areas outside the Twin Cities do not have adequate facilities for treating children's emotional problems. He urged Auxiliary members to support the development of clinics for children and entire families who have emotional problems. Traveling child guidance clinics is another possibility he suggested for bring help to outstate towns.

Luncheon speaker was Dr. Jane Hodgson, St. Paul, who described her recent experiences as one of 20 volunteer doctors serving on the HOPE hospital ship in Peru. Giving medical care and teaching medicine in underdeveloped countries is the purpose of the project. This is the "best way to communicate with them," Dr. Hodgson said.

Accompanying her talk was a film "HOPE in Peru," which showed the HOPE team at work teaching and healing, thereby combating anti-Americanism.

After the luncheon a lingerie style show was presented.

The day-long meeting concluded with "The One Who Heals," a film depicting the need for the American Medical Association's new Department of Religion and Medicine.

Mrs. Theodore S. Smith and Mrs. Donald T. Cundy, both of Minneapolis, were in charge of general arrangements.

The Mid-Winter Board Meeting, scheduled for January 21 in Minneapolis, will be the next meeting of the Auxiliary.

Auxiliary Objectives

1. To assist the county, state and national medical associations in their program for the advancement of medical science and health education.
2. To promote friendly relations between doctors' families.
3. To serve as a leader of health education in the community.
4. To act as a liaison between the medical profession and the public.



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The Blue Shield

WHY UNDERWRITING?

Unlike the old-time movies, the villain these days doesn't wear a handle-bar mustache.

Nor a broad-rimmed fedora or black cloak.

For modern organizations, the villain is virtually invisible, difficult to detect, but is in fact as dangerous as he was personified in old-time melodrama.

The villain is mounting costs.

Trouble is, when costs mount, prices rise. Consumers may then identify this readily — when they receive the bill — and point a finger of guilt at the corporation.

In the wake of socio-economic debates, rising health care costs, in particular, have been spotlighted. Today, few areas are more politically sensitive.

For Blue Shield of Minnesota, there is one basic sword which may be used — and effectively — to maintain reasonable rates for health care prepayment.

The sword is called, "underwriting."

Underwriting means simply the classification, selection and evaluation of risks.

In practice, Blue Shield underwriting maintains vigilance so that the complexion of risks does not make it necessary for Blue Shield to curtail its services.

Unlike a rubber band, maximum actuarial projections can't be stretched. All programs must, in effect, live within their incomes. If they do not, the programs of a non-profit organization need to be withdrawn, modified or new statistics and rates adopted. How is this avoided?

Blue Shield uses a number of underwriting tools.

However, since health care deals with people, the use of the tools is difficult. Each person is an individual and presents an individual "risk" to Blue Shield. And people, unlike machinery or things, are not an exact duplicate of one another. For that reason, only the most universally acceptable principles may be applied to all. That is, Blue Shield tries not to assume a risk which its rates do not cover. Nor may the Plan accept persons who deliberately work against the philosophy — and rates — of Blue Shield.

Most of Blue Shield's business is with groups, rather than individuals. In effect, by being in groups, individuals share their funds to cover one another's individual losses. To insure a proper balance to each group, Blue Shield underwriting calls for a prescribed percentage of each group to enroll. In this manner, Blue Shield is generally assured a fair cross-section. By spreading the risk through a group, the Plan is assured the need for services will not generally fluctuate beyond the calculated average.

Blue Shield will not accept for group enrollment any organization whose members or employees number less than five. In a group of 10 or more persons, there must be 75 percent response before they may be enrolled in a group Plan because group benefits are more liberal and usually, waiting periods except for maternity cases, are waived.

However, what happens if an individual member of some group wishes to change his Blue Shield coverage? In some cases, the underwriting rule calls for a statement of health history from the subscriber. This, in turn, is examined, accepted or rejected, and kept on file. If the statement is accepted, and new coverage put into effect, and a claim is presented to Blue Shield, the statement is examined for accuracy of content. Should the statement be false, then the claim is not paid.

In this manner, Blue Shield puts equity into its rates by not allowing certain people with known ailments to secure coverage at the last minute when their medical needs become urgent, at the expense of the other subscribers who join up for long-term protection when they are in good health. The subscriber may change his coverage if he wishes — yet again the Plan will not accept a deliberate risk at the expense of other subscribers. For example, a subscriber may not change his contract, pay in a few dollars, and in turn, draw out hundreds of dollars in benefits to cover a known condition at the time the change was put into effect. This type of scheme, of course, is against the pre-payment philosophy and particularly undesirable for the good of all other Blue Shield subscribers. It is simply bad business.

There are many other underwriting rules. But whatever the arrangement, the aim is the same: to permit a subscriber to have a maximum amount of benefits at a reasonable price — and to protect the stability of rates for those subscribers who join the Plan without the intent of taking advantage of it.

Of course, underwriting techniques and enrollment gains are an interrelated complex. Both are shaped by the demands of the Plan. For the Plan to grow, it must have new members. Yet these new members must not be at the expense of sound underwriting principles. The goal is to maintain the balance of risk that Blue Shield needs — and at the same time, through underwriting, to help fight the trend to higher health care costs.

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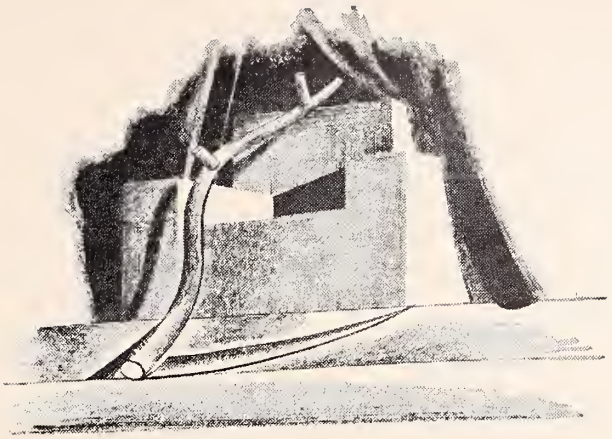
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Effective in a wide range of everyday infections—respiratory, urinary tract and others—in the young and aged—the acutely or chronically ill—when the offending organisms are tetracycline-sensitive. *Side Effects* typical of tetracyclines which may occur: glossitis, stomatitis, proctitis, nausea, diarrhea, vaginitis, dermatitis, overgrowth of nonsusceptible organisms. Also: photodynamic reaction (making avoidance of direct sunlight advisable) and, very rarely, anaphylactoid reaction. Reduce dosage in impaired renal function. *Capsules,* 150 mg. and 75 mg. of demethylchlortetracycline HCl. *Average Adult Daily Dosage:* 150 mg. q.i.d. or 300 mg. b.i.d. 1. Sweeney, W. M.; Dornbush, A. C., and Hardy, S. M.: Demethylchlortetracycline and Tetracycline Compared. Relative *in vitro* Activity and Comparative Serum Concentrations During 7 Days of Continuous Therapy. *Amer. J. Med. Sci.* 243:296 (Mar.) 1962.

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In Memoriam

ELEXIOUS THOMPSON BELL

Dr. Elexious Thompson Bell, 84, University of Minnesota professor emeritus of pathology, died September 17th in Keokuk, Iowa, of injuries suffered in a three car auto crash.

Born in Hatch, Missouri, Dr. Bell received his degree in medicine at the University of Missouri. In 1959 he was awarded the American Diabetes Association's Banting Medal "for distinguished service in the interest of doctor and patient," and his textbook on pathology today is used throughout the world.

Dr. Bell was a member of the Hennepin County Medical Society, a 50 Club member of the Minnesota State Medical Association and a member of the American Medical Association.

He is survived by his wife, a son and a daughter.

JOHN JAMES BOEHRER

Dr. John James Boehrer, Jr., 52, heart specialist and former chief of staff at Abbott Hospital in Minneapolis died October 4. He was born at Minneapolis and received his degree in medicine from Johns Hopkins University School of Medicine.

Dr. Boehrer was a member of the Minneapolis Society of Internal Medicine of which he was president, the Minnesota Society of Internal Medicine, the Minneapolis Academy of Medicine, the Hennepin County Medical Society, the Minnesota State Medical Association and the American Medical Association. He was also a clinical professor of medicine at the University of Minnesota.

He is survived by his wife, a daughter, and a son.

EDWARD L. TUOHY

Dr. Edward L. Tuohy, 85, one of the founders of the Duluth Clinic, died September 27, in a Santa Barbara, California, hospital.

Born at Chatfield, Minnesota, he graduated from the University of Minnesota Medical School. His writings appeared frequently in medical journals, and in 1951, he was one of three Minnesota physicians awarded medals for "outstanding achievement in medical fields" by the University of Minnesota. He gained national prominence through his studies in the field of geriatrics.

Dr. Tuohy was a former president of the St. Louis County Medical Society, a 50 Club member of the Minnesota State Medical Association, a member of the American Medical Association and the Minnesota Heart Association. He was one of the founders of the Nopeming Sanatorium and served on the St. Louis County Sanatorium Commission. He was active in the work of the Minnesota Society for Prevention and Relief of Tuberculosis, a former chief of staff at Nopeming and St. Mary's hospital, a member of the Central Society for Clinical Research, the American College of Physicians, the Mayo Memorial Commission, and a former member of the board of trustees of the University of Minnesota's Greater University Fund.

He is survived by his wife and a daughter.

HOWARD M. ODEL

Dr. Howard M. Odel, 54, head of a section of medicine in the Mayo Clinic and a member of the staff, died September 22, at his home. He was born in Detroit, Michigan, and received his degree in medicine from Northwestern University.

Dr. Odel was a diplomate of the National Board of Medical Examiners, a fellow of the American College of Physicians, and a member of the Zumbro Valley Medical Society, the Minnesota State Medical Association, the American Medical Association, the American Heart Association, the American Federation for Clinical Research, the Central Clinical Research Club, the Alumni Association of the Mayo Foundation, the Minnesota Society of Internal Medicine, the Minnesota Society for the Study of Diseases of the Heart and Circulation. the Nu Sigma Nu professional medical fraternity, and the Society of the Sigma Xi scientific honor society.

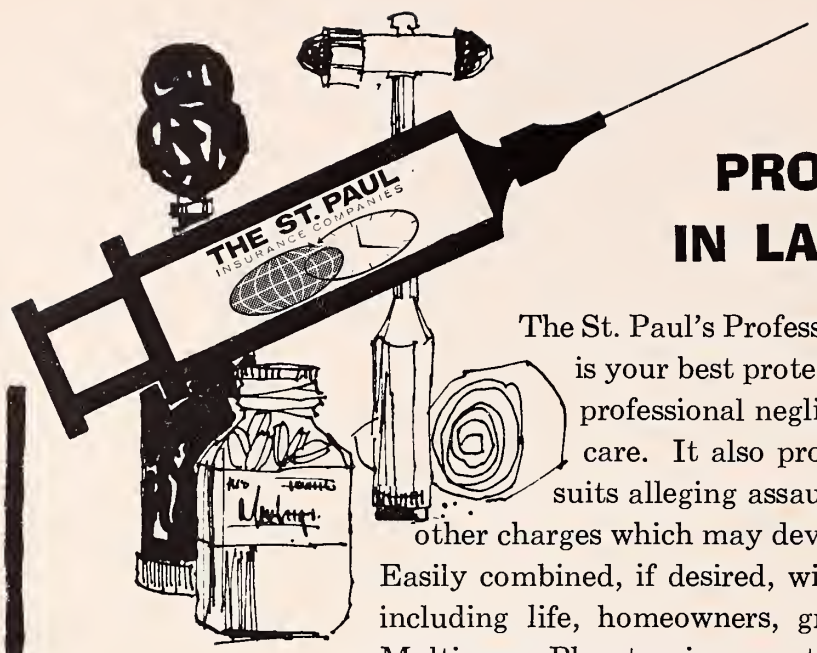
He is survived by his wife, a son and a daughter.

HAROLD E. HULLSIEK

Dr. Harold E. Hullsiek, 72, West St. Paul physician, died September 27, in Miller hospital. He was born at St. Paul, Minnesota, and received his degree of doctor of medicine at the University of Minnesota.

Dr. Hullsiek was a member of the St. Paul Surgical Society, the Minnesota Academy of Science, the American Proctologic Society, Alpha Kappa Kappa, the Ramsey County Medical Society, the Minnesota State Medical Association and the American Medical Association.

He is survived by his wife and three daughters.



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The St. Paul's Professional Liability Coverage is your best protection when allegations of professional negligence arise from patient care. It also provides protection in civil suits alleging assault and battery, libel and other charges which may develop in medical practice. Easily combined, if desired, with your other coverages including life, homeowners, group health in a single Multicover Plan to give you the most complete, most convenient coverage available today.

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CHICAGO MEDICAL SOCIETY

March 2, 3, 4 and 5, 1964 — Palmer House, Chicago

The CHICAGO MEDICAL SOCIETY ANNUAL CLINICAL CONFERENCE should be a MUST on the calendar of every physician

Plan now to attend and make your reservation at the Palmer House



Physician's Diary

Dr. Charles W. Mayo, senior surgeon of the Mayo Clinic and representative of the third generation of Mayo's to practice in Rochester, retired from that Institution on October 1st.

* * *

Dr. J. R. McNutt, Duluth, retired as the head of the radiology department of St. Mary's hospital in Superior but will remain at St. Mary's hospital in Duluth and continue his Duluth practice.

* * *

St. Joseph's Hospital, St. Paul, observed its 110th anniversary during the month of October. In 1853 when a great cholera plague swept St. Paul, a log chapel measuring 18 x 45 feet was converted into an emergency hospital which is St. Joseph's Hospital today.

* * *

New Locations: **Dr. J. W. Strand,** formerly of St. Paul, has opened up his medical practice in Jasper . . . **Dr. Victor E. Schlossberg, Jr.,** has joined the medical staff of the Mankato Clinic . . .**Dr. Everett J. Duthoy** and **Dr. Robert D. Schrantz** announced the association of **Dr. Gary Baab** with the Itasca Clinic in Park Rapids . . . **Dr. Henry L. Williams** of Rochester joined the faculty of the University of Minnesota Medical School . . . **Dr. R. R. Remsberg** of Tracy opened up new offices . . . and **Dr. Vincent Hunt** opened up a new Medical Arts Clinic in Red Lake Falls.

* * *

Dr. Waltman Walters, emeritus senior surgeon of the Mayo Clinic, has been elected a member of the Leopoldian German Academy of Natural Sciences.

* * *

Minnesota Academy of General Practice recently elected the following officers: **Dr. William H. A. Watson** of St. Paul, president; **Dr. Chester Anderson** of Hector, vice president; **Dr. Herb Huffington** of Waterville, secretary; and **Dr. E. A. Taylor** of Fairmont, president-elect.

* * *

Dr. Donn C. Mosser of the University of Minnesota recently was awarded the American Cancer Society's bronze medal for his outstanding contribution to the control of cancer.

Doctors Lillian and Katherine Nye of St. Paul were among those present at the Southern Minnesota Medical Association's Meeting at the Mayo Foundation in Rochester in September. **Dr. Lloyd G. Bartholomew,** consultant in internal medicine at the Mayo Clinic, was elected president of the Southern Minnesota Medical Association during this meeting. **Dr. Bernard J. Spencer** of Minneapolis was elected first vice president; **Dr. George W. Stahl** of Austin, second vice president; and **Dr. John J. Eustermann** of Mankato continues as secretary-treasurer.

* * *

Dr. Sheldon L. Mandel of Minneapolis attended the symposium on "Progress in the Biological Sciences in Relation to Dermatology" in Cambridge, England, as a representative of the Division of Dermatology of the University of Minnesota.

* * *

Dr. Kenath H. Sponsel of Minneapolis recently gave two lectures before the Colorado Medical Society. One "Foot Surgery" and the other "Foot Manifestations of Systemic Disease."

* * *

Dr. G. T. Van Rooy of Thief River Falls was elected president of the medical staff of Northwestern hospital in that town. **Dr. G. B. Martin** was named vice president with **Dr. Leo Herber** as secretary-treasurer.

* * *

Dr. Ralph E. Smith of Rochester is the new president of the Minnesota Heart Association succeeding **Dr. Jesse E. Edwards. Dr. William Mazzitello** of St. Paul was named first vice-president; **Dr. Mel Dickie** of Rochester, second vice-president; **Dr. Reuben Berman** of Minneapolis secretary.

* * *

Dr. Edward J. Baldes, biophysicist, left Rochester's Mayo Clinic to begin a new career as a consultant to the Life Science Division of the U. S. Army Research Office in Washington, D. C.

* * *

Dr. Larry Kruger of Nashwauk and **Dr. H. P. Barthold**t of the Lake Vermillion Clinic in Soudan recently attended the Minnesota Academy of General Practice seminar in Ely.

cut Rx writing by 2/3 in colds, flu or grippe

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No need to write three separate prescriptions for antitussive, decongestant and analgesic relief of common cold, flu or grippe symptoms when it is therapeutically correct... economically sound... to specify

ANTITUSSIVE/DECONGESTANT/ANALGESIC
'EMPRAZIL-C'® TABLETS

Each tablet contains:

Codeine Phosphate*	15 mg.
'Sudafed'® brand Pseudoephedrine Hydrochloride	20 mg.
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Phenacetin	150 mg.
Aspirin	200 mg.
Caffeine	30 mg.

*Warning—may be habit forming

'Emprazil-C' Tablets are available on prescription only.

Dosage: Adults and children over 12 years—1 or 2 tablets—3 times daily as required. Children 6 to 12 years—1 tablet—3 times daily as required. **Caution:** While pseudoephedrine is virtually without pressor effect in normotensive patients, it should be used with caution in hypertension. Also, while chlorcyclizine has a low incidence of antihistaminic drowsiness, the usual precautions should be observed. **Supplied:** Bottles of 100 tablets.

Also available without codeine as 'EMPRAZIL'® TABLETS

Complete literature available on request from Professional Services Dept. PML.



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Classified

Classified advertising rates are twenty (20) cents a word; minimum monthly charge $5.00; key number, fifty (50) cents additional. Remittance should accompany order.

Replies to advertisements with key numbers should be mailed in care of Minnesota Medicine, *496 Lowry Medical Arts Bldg., St. Paul 2, Minn. 55102*

WANTED: GP partner. Good office, hospital, consultations, educational facilities, income, town, lake, hunting, fishing and partner. Best for German Catholic with GP surgical experience. Write: MINNESOTA MEDICINE, Box 241, 496 Lowry Medical Arts Building, St. Paul, Minn. 55102

WANTED — General Practitioner for medical center in growing Minneapolis suburb as partner, associate or assistant. Call St. Paul MIdway 8-8618 or Minneapolis TUxedo 8-5112, or write to: Burnsville Medical Center, Savage, Minn.

WANTED: General practitioner by established three-man group in own building, full equipped. Southwestern Minnesota — county seat — population 3,500. New hospital — fine churches — good schools, public and parochial. Golf club — grass greens. Hunting and fishing. Starting salary with opportunity for partnership. No initial investment necessary. Write: Box 199, care of MINNESOTA MEDICINE, 496 Lowry Medical Arts Bldg., St. Paul. 55102

GENERAL PRACTITIONER for well-established high grade general practice in St. Paul. Excellent hospital facilities. Good earnings. Share calls. Salary to start leading to partnership. Write Box 231; MINNESOTA MEDICINE; 496 Lowry Medical Arts Building; St. Paul. 55102

WANTED: General Practitioner to join Central Minnesota six man group. Excellent new 130 bed hospital with open staff. New offices, 25,000 drawing area, salary open, excellent schools, golfing, hunting, fishing, swimming, etc. Write: MINNESOTA MEDICINE, Box 243, 496 Lowry Medical Arts Bldg., St. Paul. 55102

G. P. active, suburban, young practice seeking an associate. New spacious office, alternating calls. Early partnership for acceptable person. Hospital affiliations with Methodist and Fairview. Contact: H. J. Racer, M.D. or R. K. Simmons, M.D., 8040 Penn Avenue South, Bloomington, Minnesota.

WANTED — RADIOLOGIST: Certified or board eligible, trained in diagnosis, therapy, special techniques, and use of isotopes; to serve unusually attractive Midwest community. Trading area of 40,000 served by 25 doctors. Modern 150 bed hospital under construction soon. Progressive professional environment. Exceptional financial opportunity. Write: MINNESOTA MEDICINE, Box 242, 496 Lowry Medical Arts Building, St. Paul, Minn. 55102

TWO DOCTORS WANTED. Here's what awaits two General Practitioners who locate in Brillion, Wisconsin, this fall: A newly constructed, fully equipped $90,000 clinic, as well as two brand new residences; a community of 1800 — located in the "milk vein of the world" — only minutes from the Fox River Valley, Lake Michigan and Green Bay. Brillion has three major industries, whose payroll is in excess of $4,000,000 a year. The needs of these firms alone will easily support two doctors. Earning potential, living and working conditions are above average with access to fishing, hunting and golfing. Write or phone Oliver C. Wordell, c/o Brillion Iron Works, Inc., Brillion, Wisconsin.

IDEAL LOCATION available in Northwest Minneapolis area, custom built suites, all new building. Space available for two pediatricians, two surgeons, two internists, two general practitioners. One of the fastest growing suburbs. Contact: A. G. Erickson, KE 3-7332 or 561-3590.

WANTED: Board certified or eligible internist for large, active practice in Minneapolis. Partner is retiring about December and am anxious for associate as soon as possible. Partnership in mind. Contact: Jesse J. Barron, M.D.; 1127 Medical Arts Building; Minneapolis 2, Minnesota. FEderal 2-8259.

INTERNIST available for locum tenens for 1-2 month starting November 1st. Also some general medicine experience. Twin City area preferred. Write: MINNESOTA MEDICINE; Box 246; 496 Lowry Medical Arts Building; St. Paul, Minnesota 55102.

RESIDENCIES in Physical Medicine and Rehabilitation offer ideal opportunity in a growing field to the general practitioner who has decided to specialize. Comprehensive training utilizing Mayo Clinic facilities and faculty, at $3600 to $8000 stipend. Attractive community with excellent school system and cultural advantages. Contact: E. C. Elkins, M.D.; Mayo Foundation; Rochester, Minnesota.

WANTED: General Practitioner for medical center in west Minneapolis suburb. Salary to start leading to early partnership. Call LIberty 5-2533, or write to: A. E. Krieber, M.D., 7956 Olson Highway, Minneapolis 27, Minnesota.

Continued on page 1189



In Sprains, Strains and Muscle Spasm, 'Soma' Compound

numbs the pain...not the patient

A potent analgesic and a superior muscle relaxant

1. A sprain or fracture is not a big clinical problem—but it does hurt. And if there is housework to do and kids to mind, the patient needs something to numb the pain.

2. A.P.C. compounds have limited usefulness; and the patient can buy them without your prescription. Unfortunately, most of them are too mild to be effective for sprains—and more potent products too often make the patient feel 'dopey'.

3. 'Soma' Compound is ideal in these cases. Since it contains both 'Soma' (carisoprodol) and acetophenetidin it is both a potent analgesic and a superior muscle relaxant; it also contains caffeine to offset any drowsiness *("numbs the pain...not the patient").*

4. Why not try 'Soma' Compound? Dosage is 1 or 2 tablets q.i.d. For more severe pain, try 'Soma' Compound + Codeine. Dosage: 1 or 2 tablets q.i.d.

5. Hypersensitivity to carisoprodol may occur rarely. Codeine may produce addiction, nausea, vomiting, constipation or miosis.

Soma® Compound

carisoprodol 200 mg., acetophenetidin 160 mg., caffeine 32 mg.

Soma® Compound + Codeine

carisoprodol 200 mg., acetophenetidin 160 mg., caffeine 32 mg., codeine phosphate 16 mg. (Warning—may be habit forming.)

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CSO-9193

Important news in cardiac therapy

Two new clinical reports document successful long-term treatment of ischemic heart disease with Persantin®, brand of dipyridamole

See next 3 pages

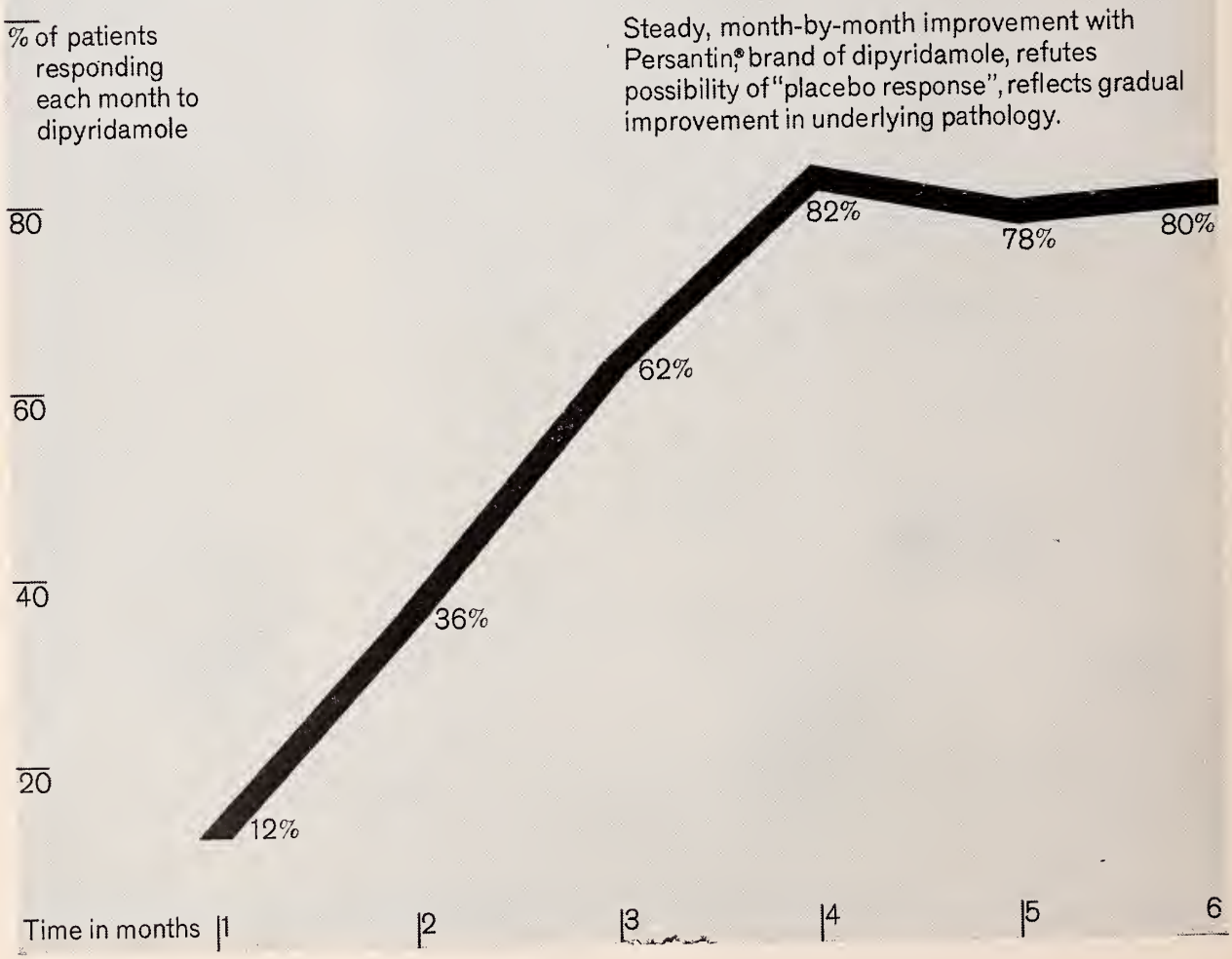
Study 1.
Griep,A.H.: Long-term Therapy of Ischemic Heart Disease With Oral Dipyridamole:
A Report of Fifty Cases. Angiology 14:484, 1963.

Persantin,® brand of dipyridamole, 25 mg. t.i.d. or q.i.d.,was administered continuously for 6 months to 50 patients with well authenticated ischemic heart disease with angina pectoris and ECG abnormalities. Results were evaluated on a monthly basis.

Persantin® brand of dipyridamole

"...long-term oral therapy with dipyridamole was of benefit in 80 per cent of the patients...

"relief [of angina] came slowly and was usually maximal after three to six months of continuous treatment"



Study 2.
Wirecki,M.: Dipyridamole (Persantin®): Evaluation of Long-Term Therapy in Angina Pectoris. Current Therapeutic Research 5:472, 1963.

In 40 ambulatory patients with myocardial ischemia, angina pectoris, and abnormal ECG findings, Persantin,® brand of dipyridamole, 25 mg. t.i.d., was administered continuously for 3 months.

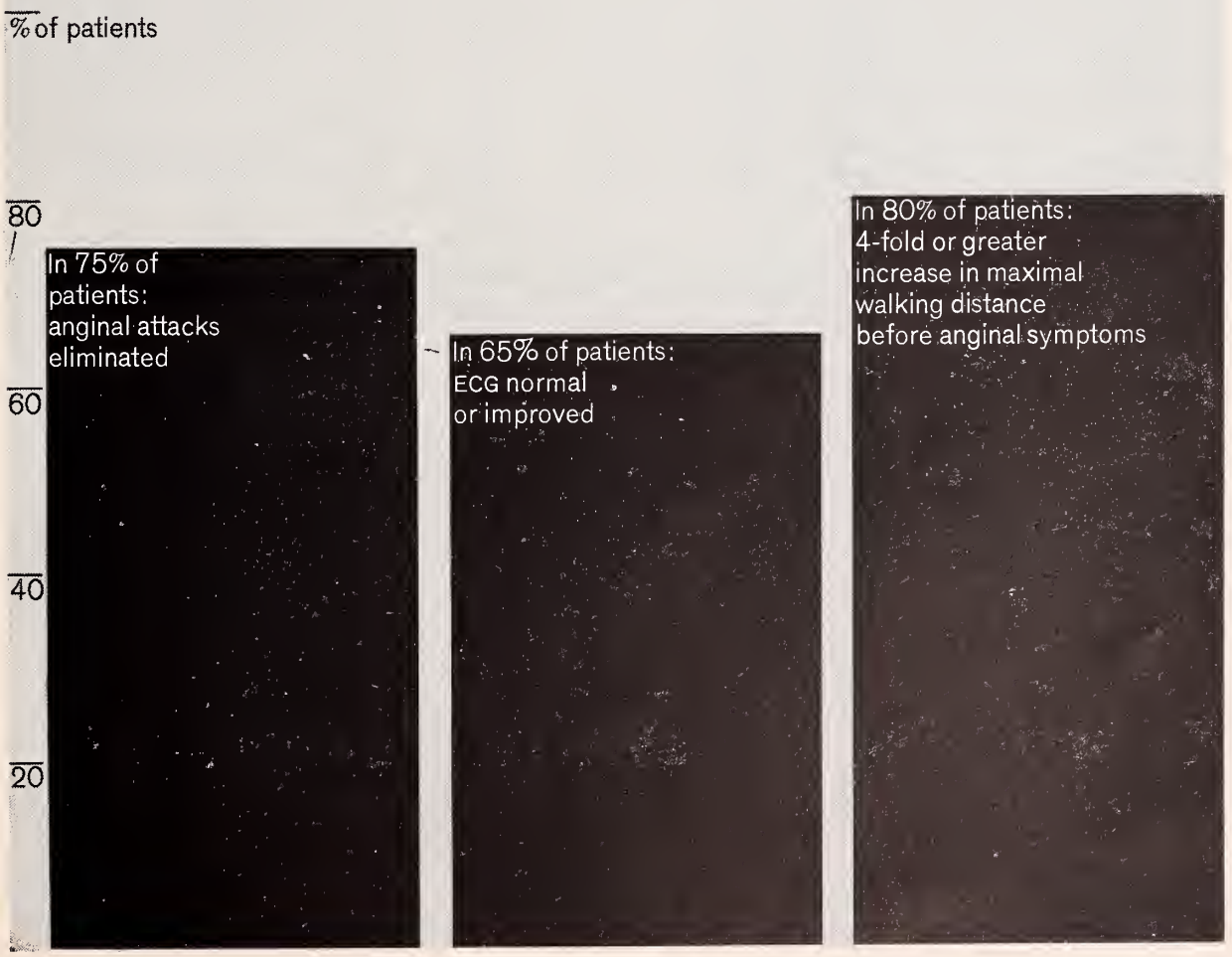
Geigy

After 3 months, 32 of 40 patients showed:

"...reduction or abolition of acute anginal attacks...

"complete or almost complete disappearance of ECG abnormalities...

"marked increase" in walking distance without anginal symptoms



Persantin® brand of dipyridamole

How long-term therapy provides clinical benefits reported on previous pages

1. By increasing energy yield
of the hypoxic myocardial cell, by direct action upon the sarcosomes (heart mitochondria).[1-5]

2. By improving collateral coronary circulation.
Prolonged oral administration of dipyridamole to animals with experimentally induced stenosis of a major coronary artery resulted in superior development of collateral coronary anastomoses and longer survival compared with controls.[6-9]

When given for prolonged periods and in adequate dosage, dipyridamole improves the coronary flow deficit of the ischemic myocardium while supporting cardiac metabolism during the period of repair. Clinically, this is manifested as steady improvement – anginal attacks diminish in frequency and intensity, as do other manifestations of insufficiency (dyspnea, fatigue, and, in many instances, abnormal electrocardiographic findings).

Availability:
Tablets of 25 mg., bottles of 100 and 1000.
Under license from Boehringer Ingelheim G.m.b.H.

Prescribing summary: Persantin® brand of dipyridamole, is indicated in coronary and myocardial insufficiency, in a dosage of 2 to 6 tablets daily in divided doses before meals for several weeks. Side effects (headache, dizziness, nausea, flushing, weakness, syncope, mild gastrointestinal distress) are minimal and transient. The drug is not recommended in the acute phase of myocardial infarction, and should be used cautiously in hypotension.

References: 1.Kunz,W.;Schmid,W.,and Siess,M.: Arzneimittel-Forsch.12:1098,1962. 2.Siess,M.: Arzneimittel-Forsch.12:683,1962. 3.Laudahn,G.: Experientia 17:415,1961. 4.Lamprecht,W.: 27th Congress of the German Society for Circulation Research,Bad Nauheim,1961. 5.Hockerts,T.,and Bögelmann,G.: Arzneimittel-Forsch.9:47,1959. 6.Vineberg,A.M.,et al.: Canad.M.A.J.87:336,1962. 7.Chari,S.R.,et al.: Presented at the International Congress of Chest Physicians,New Delhi,1963. 8.Neuhaus,G.,et al.: Presented at the Fourth World Congress of Cardiology,Mexico City,1962. 9.Asada, S.,et al.: Japanese Circ.J.26:849,1962.

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Classified Ads continued from page 1183

FOR SALE: Beck-Lee Cardiomite E.C.G., Bawmanometer, Adams Centrifuge, Burton Pipette Shaker, Otoscope, Nasopharyngoscope. George Eichler, M.D.; 1603 Cascade St. N.W.; Rochester, Minn. 55901.

SITUATION WANTED: Dentist wishes to invest, construct or rent Dento-Medical Clinic with two or more medical men. Write: MINNESOTA MEDICINE; Box 247; 496 Lowry Medical Arts Building, St. Paul 55102.

RETIRED PHYSICIAN has a sectional book case, examining table and surgical instruments for sale. Inquire by calling TA 4-2828-Minneapolis.

EXCELLENT full or part time opportunity with full participation in this growing fourteen doctor group. Liberal vacation, educational opportunities, rotation on calls, patients seen by appointment. This group needs a general practitioner and another Board eligible or certified internist. Write: MINNESOTA MEDICINE, Box 248; 496 Lowry Medical Arts Building, St. Paul 55102.

CRYSTAL AREA — well established doctors' clinic available in Minneapolis suburb. Parking and air conditioned — approximately 1500 square feet. Very reasonable rent. Call S. J. Fischman, TA 3-3556 or WA 6-2929.

Announcements continued from page 1171

ANNOUNCEMENTS

SAMA-Eaton Medical Art Award open to entries from photographers and illustrators. Applicants may be either medical students, interns or residents in the amateur class. Write: Student American Medical Association, 333 No. Michigan Avenue, Chicago.

* * *

Wyeth Laboratories is accepting applications for its 7th program of Pediatric Residency Fellowships. Eligible to apply are interns and physicians. Each fellowship provides $4800 for a two-year period. Direct inquiries: Dr. Philip Barba, University of Pennsylvania School of Medicine, Philadelphia.

* * *

American College of Chest Physicians offers three cash awards for the best essay prepared by undergraduate medical students on any phase of diagnosis and/or treatment of chest diseases. Write: Murray Kornfeld, 112 E. Chestnut Street, Chicago.

University of Minnesota continuation medical courses for 1963-1964:

November 4-8	**— Neuroradiology**
November 20-22	**— Ophthalmology**
November 21-23	**— Cardiovascular Diseases**
November 21-23	**— Orthopedic Surgery**
December 6-7	**— The Painful Back**

* * *

The subject for the Caleb Fiske Prize of the Rhode Island Medical Society is: "Clinical Application of Newer Discoveries in Enzyme Chemistry." Dissertation must be typewritten, double spaced, and not exceed 10,000 words. Essays must be submitted by December 11. Write: Caleb Fiske Fund, 106 Francis Street, Providence, Rhode Island.

* * *

A nine month tutorial program in Cardiology, September 15, 1963 to June 15, 1964, will be offered by Institute for Cardio-Pulmonary Diseases, Scripps Clinic and Research Foundation, LaJolla, Cal. Write: Secretary, Scripps Clinic, La Jolla, Cal.

Deer Hunting and the Heart continued from page 1126

6. The prolonged recovery time is consistent with the degree of oxygen deficit incurred during these high levels of energy expenditure.

7. These thirty-seven individuals not only were considered normal by their physicians but passed a double Masters two-step test and a walk through loose gravel without significant electrocardiographic abnormalities. However, when subjected to a maximal work load, 11% of these individuals show significant electrocardiographic abnormalities.

It seems obvious that such extreme work loads which produce electrocardiographic abnormalities in a significant number of so-called normal individuals are contraindicated with individuals with cardiovascular disease.

Assisted by: Jesse J. Barron, M.D.; Reuben Berman, M.D.; Wesley H. Burnham, M.D.; James S. Cole, M.D.; Olga Hansen, M.D.; Martin E. Janssen, M.D.; Thomas M. Recht, M.D.; Fred A. Rice, M.D.; L. Raymond Scherer, M.D.; Andrew W. Shea, M.D.



How can Johnson's Baby Lotion help the doctor, the mother and the baby?



The doctor knows the young mother wants to do everything in her power to keep her baby clean and happy and in good health. And more and more evidence points to the fact that the physical expression of her love for her baby is not only a delight to the mother and pleasant for her child, but an essential element in the development of a mature, self-reliant adult.* A father as well as a physician, he knows that Johnson's Baby Lotion not only makes changing diapers easier and more pleasant for all concerned, but that the antibacterial effect of its hexachlorophene content (0.5%) persists for days, to protect the baby's delicate skin from rashes and infections. With Johnson's Baby Lotion normal skin functions are unaltered because the protective film is aqueous rather than occlusively oily. These are some of the reasons so many physicians recommend Johnson's Baby Lotion for routine use to protect delicate skin. May we send you samples of this superior antibacterial emollient in the convenient new plastic bottle?

*Donnelly, J.: A.M.A. Arch. Environmental Health 6:697, June, 1963

Johnson & Johnson

New Brunswick, N. J.


RECOGNIZE
THIS PATIENT?
"I don't sleep well . . . I dream a lot . . . wake up tired and irritable. I don't have any appetite . . . I'll never be cured."

When you recognize signs of depression and anxiety and associate them with an organic condition—add 'Deprol' to your therapy.

Typical conditions in which 'Deprol' should be considered for control of the associated depression and anxiety:

Cancer ■ Cardiovascular disorders ■ Arthritis ■ Menopause ■ Alcoholism ■ Obesity ■ Asthma, hay fever and related allergies ■ Chronic infectious diseases ■ Pregnancy and post partum ■ Dermatoses ■ G.I. disorders, and many other organic disturbances.

When you recognize depression and anxiety traceable to an emotionally charged situation with no somatic disorder—start the patient on 'Deprol'.

Typical situations in which 'Deprol' is indicated:

Fear of cancer or other life-threatening disease ■ Pre- and post-operative fears ■ Marital problems ■ Death of a loved one ■ Loss of work ■ Retirement problems ■ Financial worries, and many other stressful situations.

Deprol®

meprobamate 400 mg. + benactyzine hydrochloride 1 mg.

BRIEF SUMMARY: *Indications:* Depression, especially when accompanied by anxiety, tension, agitation, rumination or insomnia. *Side Effects:* Slight drowsiness and, rarely, allergic reactions, due to meprobamate, and occasional dizziness or feeling of depersonalization in higher dosage, due to benactyzine, may occur. Meprobamate may increase effects of excessive alcohol. Use with care in patients with suicidal tendencies. Consider possibility of dependence, particularly in patients with history of drug or alcohol addiction. Withdraw gradually after prolonged use at high dosage. *Complete product information available to physicians on request.*

USUAL ADULT DOSAGE: 1 tablet q.i.d. May be increased gradually, as needed, to 3 tablets q.i.d.; with establishment of relief, may be reduced gradually to maintenance levels.

SUPPLIED: Light-pink, scored tablets. Bottles of 50.

WALLACE LABORATORIES / *Cranbury, N. J.*

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The one tranquilizer that

BELONGS IN EVERY PRACTICE

it's versatile: The years have proved that 'Miltown' (meprobamate) is the one tranquilizer that is helpful in almost every aspect of daily practice. Virtually any of your patients, regardless of age, can be given the drug with confidence, either as a primary treatment or as an adjunct to other therapy. **Outstanding record of safety:** Over eight years of clinical use among millions of patients throughout the world — plus more than 1500 published reports covering the use of the drug in almost every field of medicine — support your prescriptions for 'Miltown' (meprobamate). This is why it *"belongs in every practice."*

dependable: 'Miltown' (meprobamate) is an established drug. There are no surprises in store for you or your patient. You can depend on it to help your patients through periods of emotional distress — and to help maintain their emotional stability.

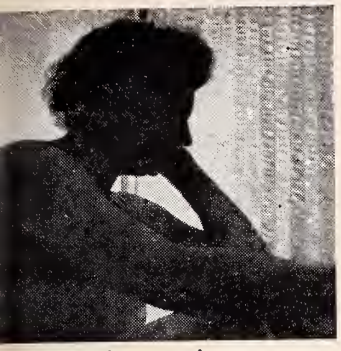
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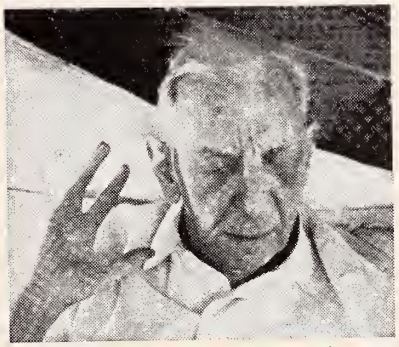
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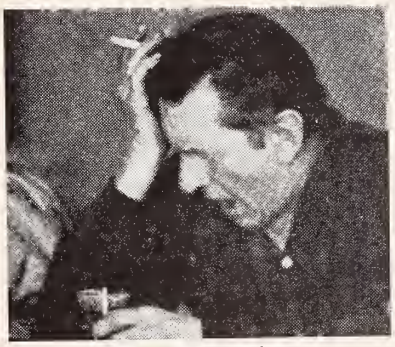
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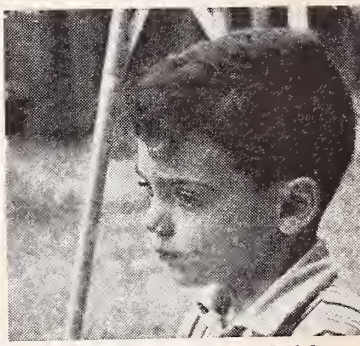
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The agitated senile patient



The alcoholic



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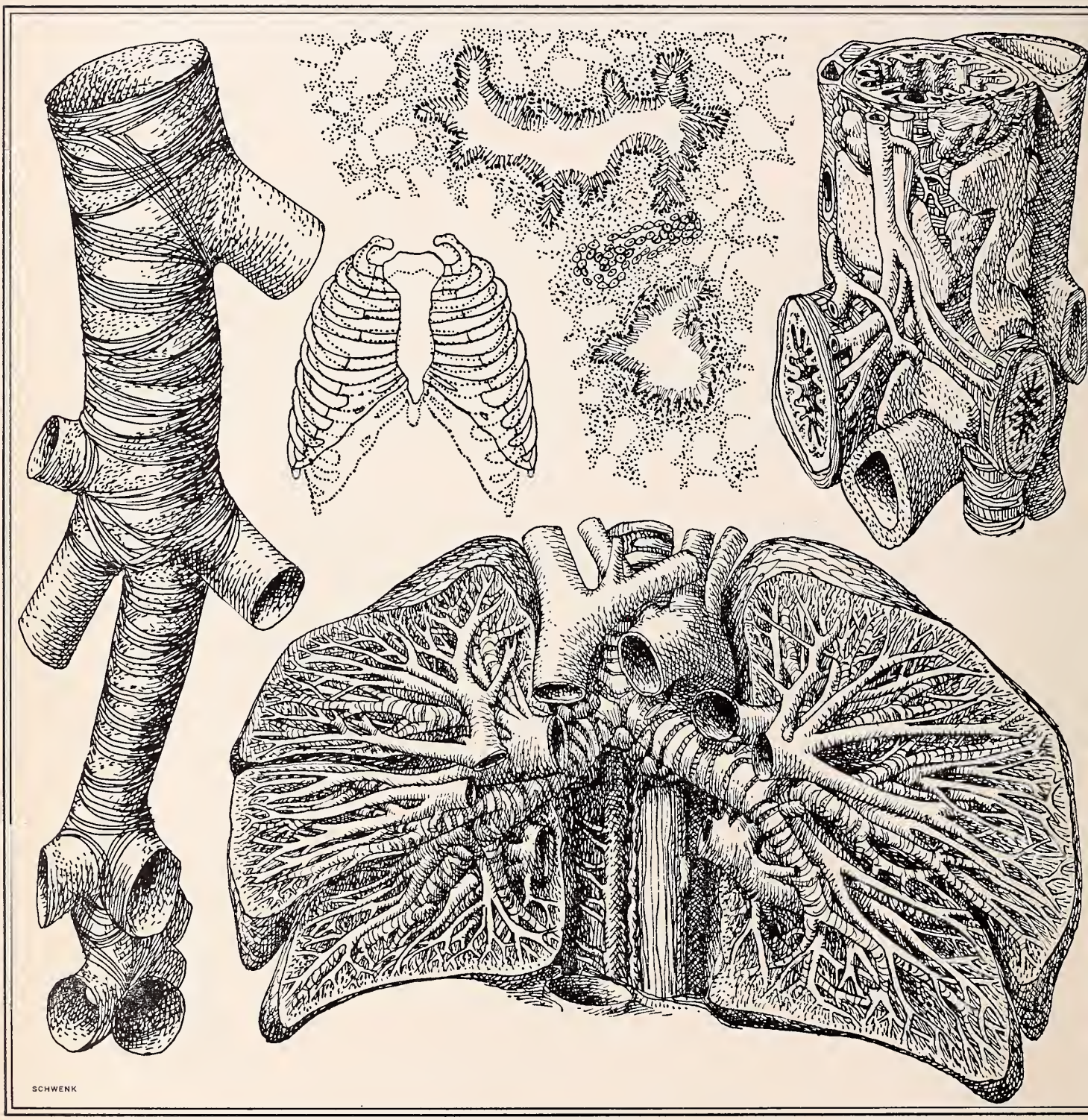


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President's Letter

With this, the December issue of Minnesota Medicine, my term as President of the State Medical Association approaches its completion.

It seems fitting in this last President's Page to review very briefly some of the accomplishments of the past year.

The past year saw the passage of a bill providing, under specific conditions, for the licensing of osteopathic physicians and the passage of a bill providing for the implementation of the Kerr-Mills Act in Minnesota. The passage of these bills represents major accomplishments for the medical profession.

Another major accomplishment was the very successful annual meeting in Duluth. This meeting was well attended and the program was excellent in every respect. Many commendatory letters have been received from members who were in attendance.

In the spring the Public Health Education Committee conducted an excellent speakers' refresher course which included talks by Dr. Edward R. Annis, then President-elect and now President of the American Medical Association, Dr. Dale Alford, former U. S. Representative from Arkansas, as well as by representatives of the Chicago and Washington offices of the A.M.A. This meeting was followed by a debate between Dr. Annis and Mr. Nelson Cruickshank of the Department of Social Security of the AFL-CIO which was followed closely by a large audience.

Another debate on the subject of medical care under the Social Security Act was held on October 30 between Dr. Annis and U. S. Representative Donald Fraser at the Richfield High School before an audience of approximately 1100 high school students who were members of debate teams in 56 high schools.

The Committee on Medical Service has completed the development of the Relative Value Guide for Minnesota, a copy of which has been sent to each member.

The Association's loan fund programs have continued to represent an outstanding accomplishment of your Association.

Another accomplishment of which we are all very proud is the continued improvement and over all excellence of our state journal, Minnesota Medicine. The American Medical Writers Association has recently given to Minnesota Medicine its First Award for the best medical journal in the category of State Medical Journals in the United States. This is a well-deserved honor and we all congratulate Dr. Carl Rice and The Board of Editors.

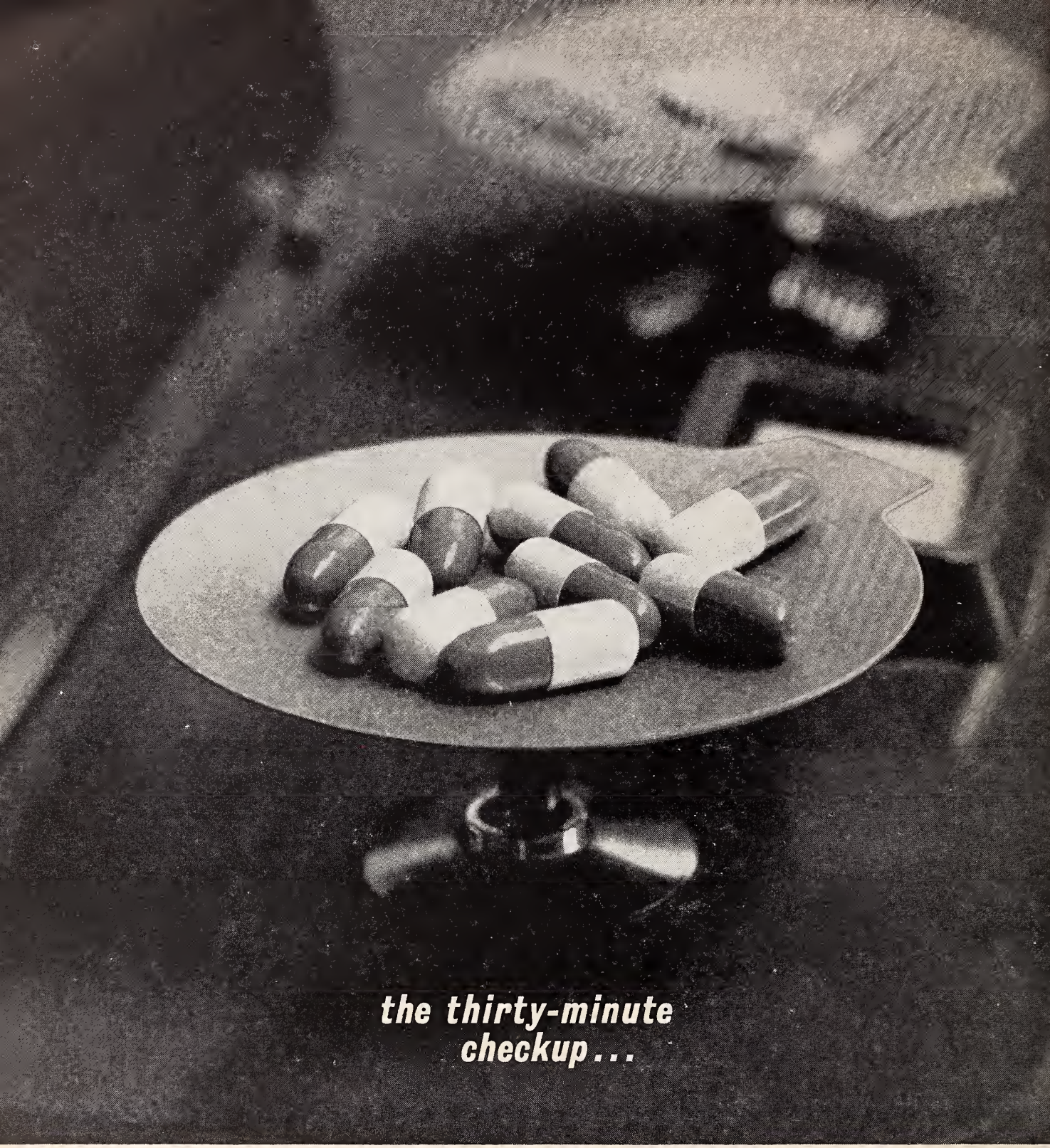
The foregoing accomplishments represent but a few of the many activities of our various committees. Each committee has rendered outstanding service. I wish to take this opportunity to express to each committee chairman and the members of all committees my sincere appreciation of their efforts.

In closing this, my last President's Page, I wish to acknowledge the untiring efforts of Mr. Brunn and of each member of the State Office Staff. My sincere thanks and appreciation to each of them.

I have been highly honored to have served as your President for the past year. For this honor I am very grateful.

Donald McCarthy

Donald McCarthy, M.D.
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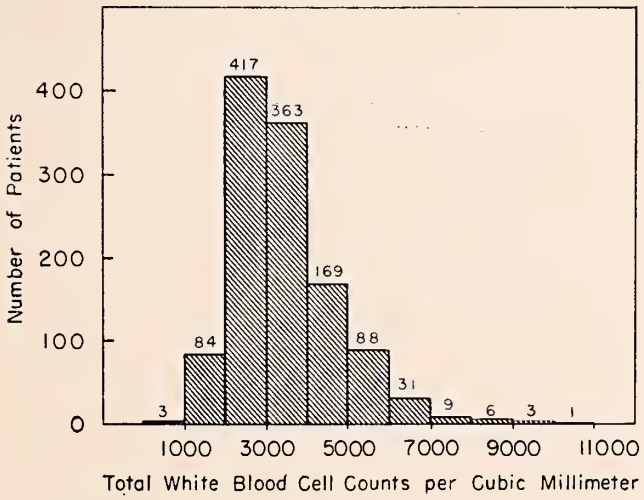
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Carcinoma of the Cervix

E. L. MAKOWSKI, M.D.*
FRED A. LYON, M.D.*
G. W. FLIGHT, M.D.*
JOHN L. McKELVEY, M.D.*
Minneapolis, Minnesota

THIS REPORT deals with the patient-survival and conversely with the persistence or recurrence of carcinoma of the cervix in those patients who developed significant lowering of peripheral white blood cells in association with irradiation therapy. Adenocarcinomas and squamous cell carcinomas are included. Only one patient has been lost from follow-up and she is included as a tumor death. With but few exceptions, only reportable patients or those who received their primary treatment at the University of Minnesota Hospitals are included, except nine who were treated only surgically and 15 who received no treatment. These were not irradiated and so cannot be considered for irradiation leukopenia; three further patients who were treated only by radium application were also excluded. Hence included are 1,175 patients treated by external long focal distance irradiation with the addition of local radium and occasionally of surgery between January 1939 and January 1956. The details of total effectiveness of the treatment of carcinoma of the cervix at the University of Minnesota Hospitals have been recently published elsewhere,** including details of the irradiation techniques employed.

Fig. 1
Lowest White Blood Counts for Patients during External Radiation Therapy



*Department of Obstetrics and Gynecology, University of Minnesota Medical School

**This study was supported by the American Cancer Society Grant #T-115A which is gratefully acknowledged.

In this paper the probability of an event's occurrence is expressed as a p value. Any value for p of .05 (5%) or below is considered statistically significant. The authors wish to express their appreciation to Mr. Vernon E. Weckwerth, Biostatistician in the University of Minnesota School of Public Health, for carrying out the statistical computations.

TABLE 1
Tumor Recurrence or Persistence by League of Nations Stages in all Patients**

Stages	No. Patients Treated	No. of Patients with Recurrence	% Developing Recurrence
LNS I***	420	90	21.4
LNS II	426	182	42.7
LNS III	284	188	66.2
LNS IV	48	46	95.8
Totals	1178*	506	43.0

*Includes three patients with radium only. All three are dead of, or with tumor.
**This table expresses recurrence or persistence rates over a period of between one month and 17 years, although all patients have been followed to death or to five or more years. Thus, this is not comparable to the usual expression of five-year survivals. As a matter of fact, of the 506 who did have recurrent tumor at some time, 42 showed the first diagnosable evidence after five years post therapy.
***Stage I includes so-called preinvasive carcinomas.

Study Method

Total leukocyte count and differential were done on admission. The total counts were repeated twice a week during therapy unless the patient developed leukopenia, in which case daily counts were added. An attempt was made to have all blood samples taken in the early morning, partly for the purposes of the study, but also so that a report would be available before additional treatment was given. These were done recently by departmental technicians and by more or less continuous personnel to ensure their being as accurate as possible. For a few years they were done by hospital personnel. It was arbitrarily decided to define leukopenia as 3,000 w.b.c. per cu. mm. or less on one or more occasions during therapy. In general, therapy was stopped when the count reached 2,000 cells per cu. mm. Marrow biopsies are not considered in this report. It should be noted that all patients were hospitalized during therapy and their diets controlled.

Results

Irradiation Leukopenia

While undergoing irradiation therapy, 504 of the 1,175 patients who received external irradiation developed a w.b.c. of 3,000 per cu. mm. or less.

It is peculiar that there is a striking decrease in the incidence of irradiation leukopenia with increasing extent of the tumor. One can only speculate on the reason for this since no real evidence is available. The differences between the incidences in the various stages are highly significant, since the p value is much less than .005.

Figure 1 shows the distribution of the lowest single white blood cell count for the total group. Of the three who dropped to less than 1,000 w.b.c., one died of agranulocytosis (the only such death in the total group), one died of tumor, and one was apparently cured of tumor.

Five-Year Survival

Table 3 shows the five-year survival rates by stages in those with and without irradiation leukopenia. In Stage 1, the difference has an associated p value of .075. The Stage 4 group is too small to be expressed in such terms. There is however a difference which is statistically significant in response of the Stage 2 ($p < .020$) and Stage 3 ($p < .015$) tumors. In these two groups, for some reason, the survival rate was greater in the patients who responded with a depression of peripheral white blood cells than in those who did not. In a similar way, the total survival for all patients with leukopenia is significantly greater than in the nonleukopenic group ($p < .002$). The degree of the difference

TABLE 2
Irradiation Leukopenia

Stages	No. of Patients	Incidence, %
LNS I	225	53.6
LNS II	200	46.9
LNS III	69	24.3
LNS IV	10	20.8
Totals	504	42.8

TABLE 3
5-Year Survival Rates

Stage	No. of Patients with Leukopenia	5-Year Survival, %	No. of Patients without Leukopenia	5-Year Survival, %
LNS I	225	84.9	194	78.4
LNS II	200	66.0	225	55.1
LNS III	69	47.8	214	31.3
LNS IV	10	0	38	5.3
Totals	504	70.6	671	51.4

should be qualified by the difference in distribution by stages, but the basic findings seem to be fact.

The average age of patients in the two groups was not significantly different within any single stage. The average appearance of the first white cell drop to 3,000 per cu. mm. or below was 16 days after beginning daily X-ray or cobalt therapy. The average duration of the leukopenia was seven days. The average total white cell count at the onset of external irradiation was 6,480 for those who developed leukopenia later and 8,620 for those who did not. One might also speculate on the significance of this, but again proof is lacking. It is now clear that what was once thought to be a seasonal variation of leukopenia is not real.

Influence of Kilovolts

From January 1939 to June 1942 a 220 kv. X-ray machine was used; then in 1953 a 400 kv. machine was substituted. The CO^{60} unit was introduced in 1953, and since April of that year, alternate patients with tumors of the same stage were treated by X-ray and by cobalt irradiation as a check on the efficiency of the cobalt source. In all of these therapy forms, the external irradiation was given during a period of time as close to 28 calendar days as possible with daily treatments except on Sunday. There was no significant change in the number or size of portals. The dosage involved the delivery diffusely to mid-pelvis (halfway between front and back) of 3,000 tissue roentgens from external irradiation. About halfway through the study, an extra 500 roentgens was added to Stages 3 and 4 tumors. An extra 10 percent was given when the cobalt source was used. Radium was applied on the last day of external irradiation and continued for 100 hours.

Tables 4, 5 and 6 show total five-year survival rates for the three treatment modalities of 53, 61, and 64 percent, respectively. There is some evidence of a small difference in the proportionate distribution of numbers in the various stages in the three groups so that, while there is a statistically significant difference between the survival rates of the first and the other two modalities of treatment, this should be interpreted with caution.

There is a striking difference in the incidence of leukopenia occurring in association with the type of external irradiation source. This is seen in the total incidence (21% for the 220 kv., 50.2% for the 400 kv., and 36.8% for the cobalt source). It is still more striking for Stages 1 and 2, in which the 220 kv. machine produced much less leukopenia than the other two machines. Statistical testing shows both of these differences to be significant. However, if one compares the survival rates by individual stages for the three modalities, it seems clear that there is insufficient evidence to directly relate the leukopenia to survival. This is supported by lack of significant differences.

Leukopenia in Relation to Survival

One must look elsewhere, then, for evidence of such relationship and for an explanation of the difference in survival rates of the total groups. The obvious approach is to examine the fate of those patients who developed leukopenia as compared with those who did not.

When disregarding LNS stages there is a significant difference in the survival rates of patients with leukopenia and those without, for the 400 kv. and cobalt, but no similar difference is demonstrable when the 220 kv. machine was used. When similarly considered by stage, one is surprised to find that with the 220 kv. ma-

chine the only significantly increased survival in the leukepenic group is in Stage 3, whereas in the group treated by the 400 kv. machine, there is a significantly increased survival in the leukopenic group in both Stages 2 ($p < .045$) and 3 ($p < .02$) and questionably in Stage 1 ($p < .075$). It is probably wise not to deal similarly with the cobalt group until larger numbers are available. Detailed study of the rates of persistence or recurrence of tumor showed that these followed the same pattern as the survival rates by stages which might have been expected, based on the 400 kv. machine results.

Discussion

An attempt has been made to identify the circumstances under which an improvement in the survival rates of patients with carcinoma of the cervix has been achieved. One factor appears to be related to the cause of an increased rate of leukopenia during therapy, apparently associated with the change from the 220 to the 400 kv. machine, and its outstanding feature. Proof becomes complicated, since it is necessary to consider the proportionate distribution of patients within stages. When this is done, however, it appears justifiable to conclude that a patient who is treated for a League of Nations Stage 1, 2 or 3 carcinoma of the cervix by means of the 400 kv. machine and who develops leukopenia as defined, has a significantly better chance of survival than the patient who does not develop leukopenia under similar treatment circumstances. As might be expected, a similar relationship holds for the effect of the therapy on the tumor.

There is no evidence that the leukopenia here is related to dosage differences. As described above, attempts have been made to hold the dosage at mid-pelvis and the time factor con-

TABLE 4
220 KV. Machine

Stage	No. of Patients	Alive	Dead	Percent 5-Year Survival	Percent Leukopenia
LNS I	71	57	14	80.3	19.7
LNS II	94	48	46	51.1	25.5
LNS III	68	22	46	32.4	17.6
LNS IV	10	1	9	10.0	10.0
Totals	243	128	115	52.7	21.0

TABLE 5
400 KV. Machine

Stage	No. of Patients	Alive	Dead	Percent 5-Year Survival	Percent Leukopenia
LNS I	306	249	57	81.4	61.1
LNS II	296	184	112	62.2	54.1
LNS III	185	66	119	35.7	29.7
LNS IV	31	1	30	3.2	29.0
Totals	818	500	318	61.1	50.2

TABLE 6
$Cobalt^{60}$

Stage	No. of Patients	Alive	Dead	Percent 5-Year Survival	Percent Leukopenia
LNS I	42	37	5	88.1	57.1
LNS II	35	24	11	68.6	45.7
LNS III	30	12	18	40.0	6.7
LNS IV	7	0	7	0	0
Totals	114	73	41	64.0	36.8

stant. The material was carefully studied to detect a relation between the incidence of leukopenia and the height and weight of the patients to determine the numbers and sizes of portals and thus the tissue volume dose. No such relation was found. So far as could be determined from a study of 127 patients, no relation could be established between the production of irradiation leukopenia and Graham's sensitization response (S.R.) in the pretreatment vaginal epithelial cells.

There is no suggestion that the conclusions are confused by including so-called carcinoma in situ with the Stage 1 tumors, since the basic relationship is evident in the other stages.

Within the total leukopenia group, those whose white blood counts dropped to between 2,000 and 3,000 showed better survival rates than those whose counts either dropped to below 2,000 or remained between 3,000 and 4,000.

It is interesting to note that the decreased chance of persistence or recurrence of tumor in those patients who developed leukopenia while under original therapy can be demonstrated to apply at 10 and 15 years after therapy. It is possibly true in the much smaller numbers after 20 years.

Conclusions

1. There is evidence of an improvement over the years in the survival rates of patients treated by irradiation for carcinoma of the cervix. A search is under way to identify factors which may be related to this improvement.

2. Irradiation leukopenia, as arbitrarily defined, has increased since the 400 kv. machine

TABLE 7
220 KV.

	Nonleukopenia				Leukopenia			
Stages	Total No.	Alive	Dead	% 5-Year Survival	Total No.	Alive	Dead	% 5-Year Survival
LNS I	57	46	11	80.7	14	11	3	78.6
LNS II	70	36	34	51.4	24	12	12	50.0
LNS III	56	15	41	26.8	12	7	5	58.3
LNS IV	9	1	8	11.1	1	0	1	0
Totals	192	98	94	51.0	51	30	21	58.8

TABLE 8
440 KV.

	Nonleukopenia				Leukopenia			
Stages	Total No.	Alive	Dead	% 5-Year Survival	Total No.	Alive	Dead	% 5-Year Survival
LNS I	119	90	29	75.3	187	159	28	85.2
LNS II	136	75	61	55.0	160	109	51	68.1
LNS III	130	41	89	31.5	55	25	30	45.4
LNS IV	22	1	21	4.5	9	0	9	0
Totals	407	207	200	50.9	411	293	118	71.3

TABLE 9
Cobalt^{60}

	Nonleukopenia				Leukopenia			
Stages	Total No.	Alive	Dead	% 5-Year Survival	Total No.	Alive	Dead	% 5-Year Survival
LNS I	18	16	2	88.9	24	21	3	87.5
LNS II	19	13	6	68.4	16	11	5	68.8
LNS III	28	11	17	39.3	2	1	1	50.0
LNS IV	7	0	7	0	0	0	0	0
Totals	72	40	32	55.6	42	33	9	78.6

and cobalt[60] sources of external irradiation have been substituted for the 220 kv. machine. The etiology of this is obscure.

3. The increase in the survival rate appears to be related to the increased incidence of irradiation leukopenia.

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PRIMITIVE CHILDBIRTH

For the pregnant woman in some early societies, primitive or not yet medically enlightened, childbirth was a prospect to be dreaded if not abhorred. Should unforeseen or unpredictable contingencies retard labor or if nature simply preferred to take her own sweet time during parturition, it was thought that the child itself was deliberately perverse or obdurate about making its egress. Therefore custom required that labor be hastened by resort to appalling methods of forcibly inducing the recalcitrant infant to capitulate and arrive.

"If the labor of the primitive mother was difficult, assistance of the straightforward type might be called into play. She was picked up by the feet and shaken, head down, or rolled and bounced on a blanket, or possibly laid on the open plain in order that a horseman might ride at her with the apparent intention of treading on her, only to veer aside at the last moment, and by the fear thus inspired aid in the expulsion of the child. Again, she might be laid on her back to have her abdomen trod upon, or else be hung to a tree by a strap passed under her arms, while those assisting her bore down on a strap over her abdomen."[1]

"At the time of Hippocrates the midwives were a well-organized group with clearly defined duties. Their methods of handling the lying-in woman were at times rough and included the kneading and rubbing of the abdomen and even more forceful mechanical measures such as picking up the woman and dropping her so that she struck forcibly against the bed. . . A variation consisted in tying the woman to a couch, which was then turned on end and pounded against a bundle of faggots on the ground. The Greek physicians finally dispensed with these rough procedures, but they were revived by the midwives in the Middle Ages and persisted until the Renaissance and even afterward."[1]

From the sane and scientific perspective of the Twentieth Century such practices now seem barbarous; but within the social framework and mores of an earlier era they were not only sanctioned but even obligatory.

"The icy chains of custom" do break!

Howard W. Haggard in his "Devils, Drugs, and Doctors"

You don't write because you want to say something; you write because you've got something to say. — F. Scott Fitzgerald

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Individuality is either the mark of genius or the reverse. Mediocrity finds safety in standardization. — Frederick E. Crane

Acute Fatty Metamorphosis of the Liver

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ACUTE FATTY metamorphosis of the liver in pregnancy is an infrequent and poorly understood entity. Though rare, it is extremely serious, usually rapidly fatal. Not uncommonly, the clinical course is so rapid that the obstetrician is unaware that death from liver failure is imminent until shortly before it occurs. As a result, most of our knowledge comes in retrospect from autopsy material.

Dyson[1] summarized data on 24 cases reported in the literature; only three women survived; the maternal death rate is 88%. The fetal death rate is about 75%.

At the District of Columbia General Hospital there have been 61,326 deliveries in the last ten years and the case about to be reviewed is the only proven case of acute metamorphosis of the liver seen here.

Case Report

A twenty-five-year-old female negro, Gravida IV, Para II, Ab I, with an expected date of confinement about November 4, 1962 was admitted to the hospital on September 22, 1962 in approximately the 34th week of gestation with jaundice, severe nausea and vomiting and a 12-pound weight loss in the five days prior to admission. The patient was dehydrated, looked chronically-ill and showed evidence of recent weight loss. Her temperature was 100°F; pulse 130/min; blood pressure 110/70; respirations 18/min.

The sclera were slightly icteric. Uterine size was consistent with stage of gestation; fetal heart tones were present and regular; vertex was presenting; the cervix was long and closed. The admission hematocrit was 40% with icteric plasma, white blood count 8850 with normal differential. The urine contained bile, acid, specific gravity 1.019, 1 albumin, and strongly positive acetone. Microscopic examination showed occasional WBC & RBC's/high power field, though the urine culture grew out Escherichia Coli.

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Laboratory Determinations

BUN	15 mgm.%
Sodium	130
Chlorides	94
CO^2 Combining Power	16 Meq
Potassium	2.3
Bleeding & Clotting Time	Normal
Amylase (normal)	257 units
Total Bilirubin	2.15 mgm.%
Direct	1.25 mgm.%
Indirect	0.90 mgm.%
Prothrombin Time	Normal

A few hours after admission the patient began vomiting blood. The possibility of a recurrent pyelonephritis (the patient had a history of previous pyelonephritis in pregnancy) was entertained along with the possibility of a viral hepatitis and/or hiatus hernia. In April, 1962 X-ray studies had been done elsewhere which ruled out an esophagitis or hiatus hernia.

Medical and surgical consultants along with other laboratory studies failed to help in reaching a definitive diagnosis.

Treatment was begun for a urinary tract infection and supportive care given for the dehydration and nausea and vomiting.

Five days after admission the fetal heart tones disappeared and three days later the patient rapidly delivered a macerated 6 lb. 4 oz. female infant. Approximately nine hours after delivery the patient went into profound, unexplained shock which responded to nothing. No gastrointestinal bleeding was apparent at this time and the patient expired on the eighth day after admission.

At autopsy, the major findings were:

(1) Acute metamorphosis of liver with severe central lobular congestion

(2) Focal chronic pyelonephritis

Discussion

The lesion was first described by Sheehan[2] as "obstetric acute yellow atrophy." He reported the occurrence of six cases, but clinical and anatomic details were meager, as this description was a small part of a larger paper.

In the older classification of the toxemias of pregnancy which were popular in the 1920s and 1930s, one of the entities was "acute yellow atrophy." In all probability this included both massive (fulminant) viral hepatitis and the lesion under discussion here.

Clinical Aspects

The clinical aspects of acute fatty metamorphosis of the liver are well defined. The clinical course is characterized by jaundice late in pregnancy. Hemolytic and obstructive jaundice can be ruled out. The disease is clearly one of the varieties of parenchymatous (hepatocellular) jaundice. The baby usually dies in utero, and shortly after delivery the patient becomes progressively worse and dies in hepatic failure.

Fulminant epidemic viral hepatitis must be ruled out along with acute intoxication from arsenic, phosphorus, chloroform and carbon tetrachloride, Weil's disease (leptospiral hepatitis) and certain malnutritional conditions. It is doubtful whether the diagnosis can be made antemortem without morphologic confirmation from a liver biopsy as was done in one of the cases that survived, reported by Whitacre and Fang.[3]

Pathology

The pathologic findings in this condition are reasonably consistent.[4] There is a diffuse fatty metamorphosis of the central half to two thirds of each liver lobule with preservation of lobular architecture per se. The peripheral portion of the lobule is spared. The liver cells are somewhat ballooned by a number of tiny fat vacuoles which may on occasion coalesce. There is no overt necrosis. When parenchymal cells disappear they do so without trace. Ghost cells are not present and there is practically no inflammatory reaction. On purely histopathologic criteria, the lesion in these cases cannot be classed as infectious hepatitis. It resembles more closely the effects of an exotoxin or an endotoxin upon the liver.

The reason why this lesion occurs in late pregnancy is unknown. The disturbance in the liver is presumably the result of a metabolic injury. Two alternative mechanisms for its genesis have been proposed. First, this may represent acute nutritional failure. Certainly one cannot specify which nutrient or combination of nutrients is deficient in relation to the demand for it. A body of experimental evidence has recently been accumulated that ethionine, a chemical analogue of methionine which enters into metabolic competition with it, can produce necrotizing pancreatitis and fatty metamorphosis of liver cells. Ethionine may be the principal nutrient involved. Alternatively, the physiologic failure of the liver and its structural changes may conceivably be the result of the action of some humoral agent which either is present because the patient is pregnant or exerts an abnormally destructive effect in the pregnant state. Whether such a hypothetic substance might be a hormone or toxin is, again, a matter of speculation.

Treatment

There are certain therapeutic implications which must be stated, however fragmentary our knowledge of this distinctive syndrome may be. Once an antemortem diagnosis has been established by a needle biopsy of the liver vigorous treatment of the patient with fat-free, protein-high intake as well as parenteral fluids and vitamins is indicated. The administration of choline and methionine to counteract the action of ethionine is justified. Finally, the high fetal mortality in these cases so near term seems to indicate that prompt termination of the pregnancy would be in the best interests of the mother and child.

Conclusions

1. A fatal case of jaundice occurring in the third trimester of pregnancy is presented.

2. Though the clinical course of this disease is difficult to distinguish from fulminant, epidemic (viral) hepatitis, the pathological lesion is readily distinguishable from infectious hepatatis. The pathology consists of extensive fatty metamorphosis of liver cells occupying the central two thirds of the liver lobule. There is no significant infiltration of inflammatory cells nor is there evidence of necrosis of liver cells.

3. Twenty-four cases have been reported previously. Only three patients have survived, a mortality of 88 percent. The fetal death rate is about 75 percent.

4. The cause of this disease is unknown. Nutrition and/or endotoxin or exotoxin have been suggested as etiological factors.

5. A liver biopsy is necessary for the antepartum diagnosis. Once made, vigorous treatment with a fat-free, protein-high diet including choline and methionine and termination of the pregnancy may help the patient to survive.

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STEIN-LEVENTHAL SYNDROME

This syndrome is characterized by bilateral enlarged polycystic ovaries associated with amenorrhea, sterility and frequently hirsutism. The condition usually occurs in the second and third decades. The clinical symptoms vary considerably. In a small proportion of patients the menses are anovulatory with increased frequency and heavy flow. The ovaries have a thickened, smooth, pearly-white capsule beneath which are numerous microfollicles. Histologically the ovaries show thecal hyperplasia and luteinization. The endometrium, if there is amenorrhea, is completely atrophic.

The etiology of this syndrome is as yet unproved but could involve one or more of three endocrine glands — the anterior pituitary, adrenal cortex or ovary. An increase in basophilic cells and evidence of increased luteinizing hormone incriminate the anterior pituitary. Most histologic and biochemical studies of the adrenal glands have been normal. When incubated in vitro with radioactive progesterone, wedges of ovaries from typical patients with the syndrome demonstrate an abnormal metabolic pathway which ends in androstenedione — a potent androgen. This evidence is taken as proof that the endocrine organ defect is in the ovary.

Treatment consists of bilateral surgical wedge resection of the ovaries. In properly selected cases this procedure corrects the amenorrhea and sterility.

Generosity is giving more than you can, and pride is taking less than you need. — Kahlil Gibran

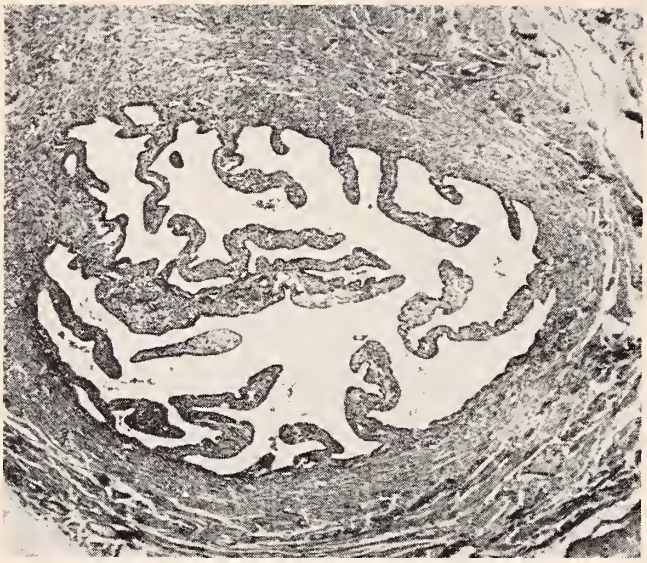


Fig. 1 — Histology: Normal Tube 60X

The Pathogenesis

DESPITE ITS frequency throughout the ages, and despite the fact that many cases present a clinical picture of acute abdomen leading to laparotomy and excision, the development of the retort-shaped pyosalpinx is poorly understood. Most textbooks refer simply to the fact that "the fimbria are retracted" with adhesion on the peritoneal surfaces. Some state that "the tube is occluded." We still lack a satisfactory explanation of why this remarkable phenomenon — purposeful motility in tissues which are devoid of muscle — should occur. Occasionally, however, such retraction does not occur — traditionally in cases of tuberculous salpingitis. This even more remarkable exception to the above phenomenon should emphasize the basic nature of the change.

The clinical aspects of this problem have altered in recent years, due largely to the development of antibiotics. With these "wonder drugs" added to the doctor's armamentarium there has been a considerable alleviation of the symptoms. In the early days of antibiotic therapy the hope arose that not only would the patient be relieved of acute pain and acute fever, but the organic damage to the infected Fallopian tube might be avoided. This latter hope has not materialized. Some patients, adequately treated from the earliest stages of the disease, may indeed avoid organic damage. But very many still suffer the destructive sequelae of acute salpingitis.

This realization has led doctors faced with this problem to seek ancillary forms of treatment, among these the use of hormones — mainly corticosteroids — advocated by A. A. Hurtig in 1952 and 1954 and by C. G. Collins, et al in 1952. Enzymes, mainly hyaluronidase, have also been tried by A. Dzioba, in 1960 in Poland.

At the University College Hospital of the West Indies at Mona in Jamaica, pyosalpinx is a significant problem in clinical gynaecology. Since 1957 we have been using corticosteroid therapy in conjunction with antibiotic therapy to treat selected cases of complicated pelvic inflamma-

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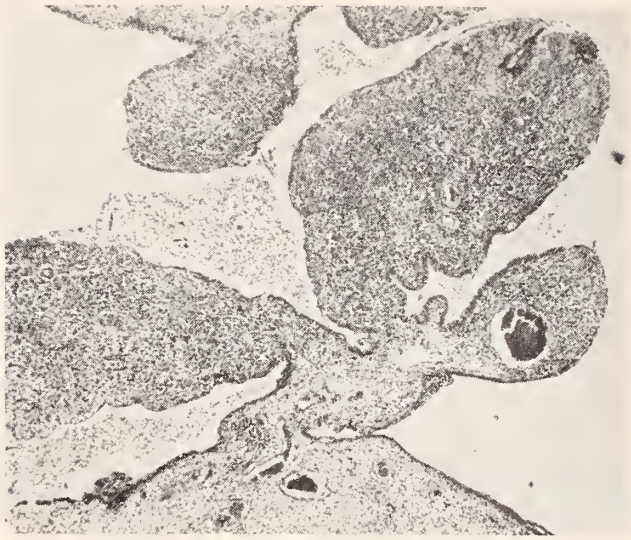


Fig. 2 — Histology: Infected Tube 60X

of Pyosalpinx

tory disease and have been very pleasantly surprised at the results in many cases. A typical case of acute abdomen due to pelvic inflammatory disease with adnexal masses would be admitted and treated with antibiotics and other supportive therapy, i.e., sedatives, fluid infusion, bed rest, etc. After a few days on this regime we would regretfully have to admit that the patient was not improving. Corticosteroids would then be exhibited in addition, and after two or three days, symptomatic and objective improvement would be evident. The masses would diminish in size, fixity, tension, and tenderness. The temperature would fall; the patient would feel better. Laboratory investigations do not always parallel this dramatic response, and the white cell count and erythrocyte sedimentation rate would pursue wavering courses back toward normal levels.

We have tried this treatment on many patients and concluded that the corticosteroid undoubtedly helped; but we could not explain how. The reasoning usually advanced is that the "anti-inflammatory effect" of the steroid released the captive organisms from their sequestration within the tube, thus allowing them to meet the antibiotics. But unless the antibiotics could also penetrate into the Fallopian tube to suppress bacterial infection there, this could not explain the dramatic relief of the condition.

This paper describes preliminary observations in an experiment to find an alternative explanation of the usefulness of the steroids.

Materials and Methods

Clinical material was taken from six patients undergoing surgery for chronic tubal disease. These patients were not acutely ill. The hydrosalpinx or pyosalpinx was excised and divided into aliquots. One section was sent for routine histology. The other, kept cool and dry, was submitted to the laboratory for experiment.

The controls were patients who were undergoing salpingectomy for the purpose of sterilization, i.e., immediately post partum. The tubes were similarly divided and submitted for histology and for test.

Laboratory

Fresh material was available from the cases described above, thereby permitting the use of the immunohistochemical techniques described by Coons, Creech, Jones and Berliner (1942) and Kaplan (1950). Blocks of tissues from the diseased and normal Fallopian tubes were "quick-frozen" in a dry-ice alcohol mixture and stored at −20°C.

Sections of "quick-frozen" tissue, 4 micra thick, were cut in the cryostat at −15°C, and mounted on 0.9 to 1 mm. thick slides as required for dark-field observation. After fixation in 95% ethanol for 30 seconds, the sections were rinsed with buffered saline, pH 7.2, from a wash bottle, and placed in two changes of buffered saline for a total of 10 minutes. After draining, two drops of diluted labeled rabbit antibody to human globulin were added to the sections, which were kept in a moist atmosphere for 30 minutes at room temperature. The slides were then washed with buffered saline (phosphate) as before. The sections were next air-dryed and cover slips were mounted with buffered glycerin pH 7.2.

Control

Control sections of Fallopian tubes were treated with unlabeled globulin fraction of patient's serum for 30 minutes before application of the labeled serum in order to demonstrate specific blocking of the "staining." Other control sections were "stained" with fluorescent — labeled rabbit antibody to human gamma globulin. The sections were then examined by ultraviolet light with a mercury vapour arc lamp in a Zeiss unit with the appropriate filters and photographed with a Leica camera.

Preparation of Serum Fractions

Antisera were produced in healthy young rabbits weighing approximately five lbs. each. Pieces of Fallopian tube were teased, cut into fine fragments, and then homogenized in a blender. This product was mixed with Freund adjuvant as follows: 0.5 gm. of tissue with 4.5 ml. of sterile 0.85 per cent NaCl, and the suspension was added gradually to a mixture composed of 4.25 ml. Bayol D and 0.75 ml. Arlacel A and 20 mg. killed and dried Myobacterium butyricum. If a drop did not spread on a water surface, the preparation was then ready for use, and was administered by subcutaneous injection into the back of each animal at intervals of 10 days, followed in a month by booster injections, given in multiple sites. The animals were bled two weeks after the last injection.

The globulin fractions of the antisera were prepared by three precipitations with Na_2So_4 (A. J. Strauss, et al., 1960) and the precipitates redissolved in cold distilled water, transferred to a dialysing bag, and the sodium sulphate removed. The globulin was then coupled with fluorescein isothiocyanate, and the labeled antiserum treated with powdered rat liver to reduce nonspecific staining. The indirect or "sandwich" technique was also employed. The tissues of both normal and abnormal cases were first exposed to unlabeled antiserum — in the majority of cases for 30 minutes. The excess antiserum was then washed off and the tissue "stained" with a fluorescein-labeled antibody to the gamma globulin of the antiserum applied.

Bacterial Antigens

Preliminary work has also been done on sections from both normal and abnormal tissues by the use of the fluorescent antibody methods. Sections were stained with the fluorescein conjugate of the E. coli polyvalent II with a titer of 1:5. The Streptoccoccal Group A fluorescein Conjugate with a titer of 1:50 and the G.C. fluorescein Conjugate were also employed.

Results

Sections typical for normal and infected tubes are shown in Figures 1 and 2. The histopathology reports are summarized in Table 1.

Figures 3 and 4 show typical appearances on fluorescent microscopy of normal[1] and infected tubes.[2]

Discussion

Although salpingitis is common, it is a very difficult condition to characterize. Exposure to the infectious agent is usually clouded by sociopsychologic problems. Gonorrhoea is a venereal disease — probably the commonest of them, and is usually propagated during casual, illicit, and clandestine cohabitation. Infection of the Fallopian tubes by the streptococcus and coliform organisms is frequently associated with

TABLE I

Patient's Initials	Quoted Histology Report	Fluorescent Cells
	Controls	
L. F.	Normal (post partum) Tube	No
M. W.	Normal Fallopian tube	No
L. C.	Normal Fallopian tube	No
	Subjects	
M. H.	Marked chronic salpingitis	Yes
E. M.	Chronically inflamed Fallopian tube	Yes
E. B.	Acute-on-chronic salpingitis	Yes
A. J.	Severe chronic salpingitis and hydrosalpinx	Yes
F. N.	Fallopian tube inflamed	Yes
V. H.	Chronic inflammatory changes	Yes

pregnancy — more specifically with abortion and puerperal sepsis.

The clinical picture of the infection tends to emerge only after a period of some days' incubation; the severity of the early symptoms is seldom in keeping with the highly infectious nature of the condition. As a result the incidence of acute salpingitis and the frequency with which the various aetiologic agents are responsible are points of controversy even today. These facts have been reviewed by Richardson in Australia, 1957, and studied by C. A. Rimrose in Detroit, 1960, to mention only two of the recent clinical studies. Routine identification of the bacterial agent is very difficult and cultures from the superficial organs in the region have not yielded reliable information.[9]

Methods of Therapy

As a result of these considerations the methods of treatment are empirical. Early use of antibiotics in full dosage is the common rule. The results depend on uncontrollable factors: (a) the virulence of the organism, (b) the extent of its spread when first seen by the doctor, (c) the response of the patient to the organism, (d) the sensitivity of the organism to the antibiotic.

Physiologic Changes

The unpredictable nature of the response of the patient suggests that her physiologic state may be an important factor. It seemed likely to us that some factor such as described in Hans Selye's concept of stress might be relevant to the situation. Under these circumstances the idea of using cortisone and more recently prednisone as an adjunct to antibiotic therapy, as suggested by A. A. Hurtig, in 1954, seemed a good one.

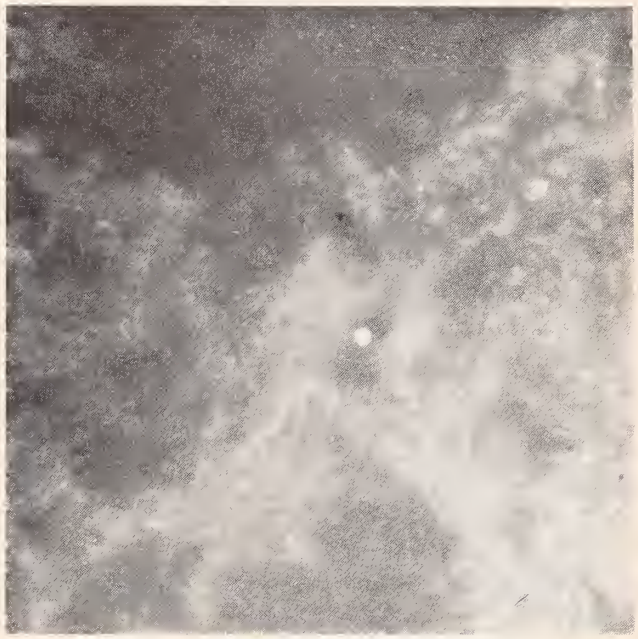


Fig. 3 — Fluorescent Cells: Normal Tube

Some benefit was derived when this method was practised. However, experience has shown that the best one can obtain is amelioration of the acute condition. The fibrotic scar tissue surrounding the lesion and distorting the anatomy cannot be destroyed, and subsequent definitive surgery is usually necessary.

Immune Response

An alternative explanation of the beneficial



Fig. 4 — Fluorescent Cells: Infected Tube

effect seems to be that the withdrawal of the fimbria may have some subtler cause. Thus the effect of the bacterial agent might be primarily in "injuring" the delicate and highly functional cells of the fimbria. To quote J. W. Steiner, and R. Volpe, 1961: "any injury to cells, biologic, physical or chemical . . . would convert them into non-self (i.e. foreign to the patient) and an autoantigen would be created." The clinical reaction we see would thus be the immunologic response of the patient's Fallopian tubes (and other tissues) to the foreign protein of altered fimbrial cells. As an immunologic response it would be affected by cortisone, tending to produce tolerance.

Such cell reaction can be demonstrated and the method we have adopted is a fluorescent antibody technique. First experiments have clearly shown the existence of immunologically competent cells in these tissues. Furthermore, these results are far more readily demonstrated at the sites of injury — the fimbria and the isthmus — especially at the fimbrial end. Attempts have been made to exclude the bacterial antigens themselves from responsibility for this reaction. The results to date are encouraging. Much remains to be done in attempting to prove that the reaction is one of autoimmunization. In this respect we are planning procedures in line with the postulates of J. Witebsky.

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IT'S THE LAW

Erratum

(1) Report Child Beating to Police

In "The Battered Child Syndrome," Ten Bensel and Raile, Minnesota Medicine, Vol. 46, page 981, 1962, have misquoted the law, having neglected to mention two amendments the interpretation of which indicates that the physician has no obligation to report a case of child beating if the child is 16 or more years of age. Furthermore, a physician who reports such a case has no protection from suits for libel and slander which might be made against him. Protection is afforded only for reports of child beating under the age of sixteen made to the police.

(2) To Retain Hospital Records — Decision of Hospital Board

The final paragraph of the article by Mary Bujold et al. Minnesota Medicine, Vol. 46, page 1047, 1963 should be rephrased to read as follows in order to properly reflect Minnesota law:

How long a hospital's medical records should be retained is a matter for each hospital to decide. The American Hospital Association in May 1960 adopted a resolution which provides that 25 years is the maximum time that a hospital needs to retain its medical records, provided appropriate indexes or summary cards preserve basic information and provide any records required by law are kept indefinitely. We recommend that Minnesota hospitals follow such a policy. If a Minnesota hospital adopts a policy of retaining medical records for 25 years, it is authorized by statute to microfilm such records and if it does so, to destroy the originals when they become 10 years old. (Sections 145.30-145.33, Minnesota Statutes, 1961.)

Editor's note: The above errors were noted and correct interpretations given by Jule M. Hannaford, legal counsel for the State Medical Association.

Fallopian TUBES

• Implantation

• of

R. F. STURLEY, M.D.
JAMES J. SWENDSON, M.D.
St. Paul, Minn.

A WOMAN, eager to have a baby but proven to have tubal occlusion, may be discouraged and, indeed, turned away by a physician who has had a minimal exposure to reconstructive tube surgery and a maximal exposure to literature on the subject. For example, Greenhill, and to a lesser degree, Siegler, have published discouraging articles, which might well influence a physician to recommend adoption or, we hope, refer the unfortunate patient to a colleague interested in tubal reconstruction.

Recent Developments

In 1936, Dr. Greenhill published a prodigious survey of the literature to that date on the subject of tuboplasty; in his study he classified 818 cases. His well-warranted pessimism for all types of tuboplasty was based upon the results of these cases, since only 54 pregnancies occurred after surgery. He was even more discouraged, because only 36 of the 54 pregnancies produced living babies, the residuum consisting of 10 abortions and the alarming number of eight tubal pregnancies. He therefore concluded that the number of living babies did not justify the large number of laparotomies, and, even more importantly, resulted in an incidence of one tubal pregnancy for every seven pregnancies, whereas the expected incidence in the general population is about one tubal pregnancy in every 300 pregnancies. A higher incidence may be expected in patients being studied for infertility.

Twenty years later, Dr. Greenhill again surveyed the literature and found some improvement in the picture. The reports of 2113 cases of tuboplasty performed during this score of years were analyzed as in his original article, and again he was discouraged by the paucity of pregnancies and alarmed by the high incidence of tubal pregnancy. Recognizing a change in the statistics but still believing the picture should further improve, he concluded that it would be best to refer all candidates for tubal reconstruction to men who have a special interest in the field and have reasonable experience with the surgical techniques.

Alvin Siegler, writing in the hard-cover Clinical Obstetrics and Gynecology in 1962, ended a discussion on tuboplasty with these words: "Although a healthy skepticism about the results of tubal reconstruction procedures is warranted, this form of experimental surgery should be continued." In his latest publication in 1963, he attempts to break down the end results of tuboplasty according to the surgical procedure employed.

This Study

We wish to present the results of cornual occlusion in a select group of women treated by

tubal implantation, hoping to inject a note of optimism into an otherwise discouraging area of gynecology. We believe that "pure" cases of tubal implantation for cornual occlusion have an excellent prognosis; however, the moment the surgeon finds additional pelvic pathology or must resort to multiple procedures upon the tube or ovary, the prognosis wilts.

An excellent prognosis for tubal implantation depends upon the following points:

(1) The sterility workup must be reasonably satisfactory. The semen analysis, endometrial biopsy, and temperature curves must be normal.

(2) The patient's general health, thyroid function, weight control, and sex habits must be studied and corrected when necessary.

(3) Hysterosalpingography must demonstrate tubal occlusion at or near the cornua of the uterus.

(4) There must be no coexisting pelvic pathology such as chronic salpingitis with or without occlusion at the fimbriated end, myomata, or endometriosis.

(5) There must be a reasonably long distal fragment of the oviduct after the tube has been transected distal to the cornual occlusion.

(6) There must be no additional surgical procedures performed to obtain patent oviducts.

Some of the above conditions cannot be determined before surgery, even with the use of culdoscopy. When unexpected pelvic pathology is encountered, requiring additional operative procedures on the tubes or ovaries, the cornual implantation is not to be abandoned if there is some hope of obtaining a patent oviduct; the chance of success diminishes, however, and the patient is immediately informed.

Technique[10]

After the abdominal cavity is opened, the site of occlusion is demonstrated by injecting air or normal saline solution into the fimbriated end of the oviduct. The oviduct is then severed distal to the occluded area. The occluded proximal portion is freed from the broad ligament, and the patent distal portion is similarly freed for a distance of 1.5 to 2.0 cm. A Paton cornual trephine with a diameter of either 4.5 or 5 mm. is passed over the occluded stump of the oviduct and, with a rotary motion of the instrument, the interstitial portion is reamed out and the uterine cavity is entered. The cut end of the patent portion of the oviduct is bisected longitudinally with fine scissors for a distance of 1.0 to 1.5 cm. to form anterior and posterior flaps. A No. 00 chromic suture on an atraumatic needle is passed through the end of the anterior flap so that it enters and emerges on the serosal surface. Both ends of the suture are left long and the needle is cut off. A similar suture is placed in the end of the posterior flap. The eye of a large Mayo needle is forced through the posterior wall of the uterine fundus superiorly and 1.0 to 1.5 cm. lateral to the midline, passing into the uterine cavity and out through the reamed-out cornual opening. Both ends of the posterior suture are threaded to the needle. The two suture ends are then pulled through the posterior uterine wall, and the two ends of the anterior suture are similarly passed through the anterior uterine wall.[9] By making gentle, simultaneous traction on the ends of the sutures, the oviduct is drawn into the newly reamed-out cornual canal so that the split ends are in the uterine cavity. The sutures are then anchored to the uterine wall and tied. Three fine, interrupted catgut sutures on atraumatic needles are placed through the serosa of both the oviduct and the uterus, where the former enters the newly created uterine opening, and are tied. Patency of the implanted oviduct is proved by injecting air or normal saline solution into the uterine cavity with an Asepto syringe.

Case Reports

Often case reports are long and tediously padded with detail. Only the pertinent points necessary to illustrate the purpose of the paper are here presented. Most of the patients had the required studies for infertility. Rubin tests were performed one or more times. All patients had cornual occlusion demonstrated by hysterosalpingography.

Case No. 1:

A 24-year-old wife of a transient steel worker. Her workup was done through the services of several gynecologists. She accumulated the necessary data and was finally seen by us for care. She had been married to another man at the age of 17. When her pregnancy at that time reached the last trimister, pre-eclampsia developed and renal infection occurred. The pregnancy was terminated by cesarean section and a tubal ligation

for sterilization done. The child did not survive. Correspondence with the hospital was unproductive. The doctor was dead. She remarried and wanted a child. Hysterosalpingograms revealed bilateral tubal occlusion at the cornua. Laparotomy revealed no additional pelvic pathology. Both tubes were present though excised from the cornua. Bilateral tubal implantation was easily done in the usual fashion. Both distal fragments were long. A Rubin test was normal following surgery. Seven months after surgery she had a proven abortion. One and one-half years after surgery she delivered a full-term living infant.

Case No. 2:

This case history is remarkably similar to Case No. 1. The woman was 29 years old when first seen by us. She had had one pregnancy at 21 years of age, interrupted by cesarean section because of toxemia. At the time of section tubal ligation was done for sterilization. Again correspondence with the small town hospital produced no valuable information. The patient remarried and wanted a child by her second husband. Hysterosalpingography revealed bilateral cornual occlusion of the oviducts. Again we found that a bilateral cornual resection had been done which, consequently, preserved long tubal fragments. We found no other pelvic pathology. A bilateral implantation was done as previously described. A Rubin test three weeks after surgery was successful. One year after surgery she delivered a full-term living infant. As of this writing she is again pregnant.

Case No. 3:

A 29-year-old woman, was seen for secondary infertility. She had had one child without difficulty. During her second pregnancy, a patent ductus arteriosus was recognized. Because of this lesion, she was aborted and sterilized by some type of tubal ligation. After cardiac surgery she was pronounced normal. She then consulted us for correction of the tubal ligation.

Hysterosalpingography demonstrated some oil in the proximal third of the left tube, but the right tube was occluded at the cornua. At time of surgery we found the ligations to be near the cornua of the uterus which left a substantial fragment of the oviduct to be implanted. There were a few small fragments of endometriosis scattered on the surface of the peritoneum. These were excised or cauterized. Both tubes were implanted in the described fashion. CO_2 insufflation after surgery was successful. Hysterosalpingography done three months after surgery revealed iodized oil in the left tube and in the peritoneal cavity. There was no oil in the right tube. One year after surgery the patient became discouraged and adopted a child. Several months later she conceived and ultimately delivered a normal living child.

Results

We were fortunate to have four cases of infertility as a result of cornual resection for sterilization. These cases were excellent candidates because cornual resection preserves most of the tube and, therefore, offers a long distal fragment for implantation. These cases satisfied all the requirements necessary for successful tubal implantation. Three of the women subsequently delivered living babies. The fourth woman had what was described as an abortion by her local physician, but the specimen was not proven histologically.

Twelve women had cornual implantations, and, with one exception, were operated upon after cornual occlusion was demonstrated by hysterosalpingography. Additional surgery was necessary in seven instances to insure a reasonable chance for tubal patency. The fimbriated end of the tube was adherent to the ovary in four cases, two of which required tuboplasty to the fimbriated end as well as cornual implantation. Two patients had endometriosis. In one case an ovary was destroyed by endometriosis and required oophrectomy. Another woman had extensive endometriosis of the Fallopian tubes. Five patients were "pure" cases of cornual occlusion.

TABLE 1

Case	Prim. Infert.	Second. Infert.	Additional Pelv. Pathol.	Additional Surgery	Post Op. Rubin	Results
1	X		None	None	OK	2 Full-Term Babies 1 Proven AB
2		X	None	None	OK	1 Full-Term Baby
3		X	None	None	OK	1 Full Term Baby
4		X	None	None	OK	1 Full-Term Baby 1 Proven AB
5	X		None	None	OK	4 Full-Term Babies 2 Proven AB's
6		X	Yes	Yes	OK	1 Full-Term Baby
7	X		Yes	Yes	OK	1 Proven AB
8		X	Yes	Yes	OK	1 Unproven AB
9	X		Yes	Yes	OK	None
10	X		Yes	Yes	NO	None
11	X		Yes	Yes	NO	None
12	X		Yes	Yes	NO	None

The most impressive point of the presentation is the success rate of the "pure" cases of cornual implantation. All five of these women delivered living babies. Of the seven women who had additional pelvic pathology which required surgical correction, only two conceived; and only one of these delivered a full-term living child.

Comments

We believe the results of all types of tuboplasty cannot and should not be indiscriminately lumped together. We agree with Greenhill that statistical studies such as his will never demonstrate results which even remotely exude optimism. Like Greenhill's and Siegler's our own experience is tainted with pessimism when we consider our results following all varieties of tubal reconstruction.

There are many techniques described for tubal implantation. All have one principle in common: the removal of the occluded portion of the tube and reintroduction of the distal fragment of the oviduct into the uterine cavity. The method and ease of accomplishment depend upon the surgeon. We do not claim distinction for the previously described technique; it has worked well in our hands and our end results are satisfactory. However, we believe it has several advantages over other methods. The reamer removes the occluded tubal lumen and in a fraction of a minute creates a clean, almost bloodless hole, large enough to work through. To date, we have had no uterine ruptures or complications as a result of the defect in the uterine wall.

Use of Splinting During Healing

We do not employ splinting material to maintain patency during the healing phase. Here seems to be the area of greatest difference among the various authors. We feel the splint is a foreign body capable of producing reaction, no matter how minimal. Nine of our twelve cases remained patent as long as we were able to follow them. Certainly the postoperative care is simplified when the tubal lumen is not splinted. This may not be a valid reason to omit splints, but it does have merit after studying our end results. However, the use of splints may have future value. Occasionally the distal fragment will be so short that only a small portion of the ampulla and the fimbriated end is visible after the tube has been drawn into the uterine cavity. In one of Siegler's publications he describes regeneration of tubal epithelium along a splint in experimental animals. If this could be duplicated in humans, we might have a method more suitable when the distal fragment is short and is almost buried in the wall of the uterus after any conventional tubal implantation. If the serosa of the tube could be sutured to the serosa of the uterus and the tubal lumen allowed to regenerate along a splint into the uterine cavity, we could end up with a substantial tubal fragment even though a large amount of the tube was sacrificed in the process of removing the occluded portion of the tubal lumen. Should this experimental work prove successful, we would gladly use splints with reservation.

CO_2 Insufflation

Some authors recommend the frequent use of CO_2 insufflation or iodized oil to open the occluded lumina before resorting to surgery. The use of tubal insufflation with CO_2 or iodized oil under either ordinary or increased pressure has not been a successful therapeutic measure in our hands. We recommend the use of these valuable procedures for diagnosis and not for therapy. We object to repeated CO_2 insufflation and hysterosalpingography both before and after surgery. We believe there is always danger of activating an old pelvic inflammatory disease.

Further, we believe an unsuccessful Rubin test followed by hysterosalpingography, using 7 cc. of iodized oil, is adequate to establish the diagnosis of tubal occlusion. If the first X rays, however, are not conclusive, we inject two cubic centimeters more of the iodized oil and repeat the X ray twenty-four hours later. The twelve cases reported in this article had cornual occlusion which was confirmed at surgery by the retrograde injection of saline and by the histological examination of the tubal plug removed at time of implantation.

The possibility that we may operate upon someone who was erroneously diagnosed as having occluded tubes does not defeat the purpose of the paper. We are primarily concerned at this moment with the premise that women can get pregnant after tubal implantation. We believe we have proven our point.

Conclusions

1. A report of twelve cases of cornual occlusion of the tubes treated by implantation is presented with a description of the surgical procedure.

2. Seven patients had either proven abortions or full term pregnancies.

3. The presence of additional pelvic pathology, particularly of the tubes, reduces the prognosis.

4. The prognosis is good if the pelvis is normal and only tubal implantation is required to obtain tubal patency.

5. The use of splinting material is briefly discussed and dismissed. Our results do not suggest the need for change at this time.

6. The results of tuboplasty should not be considered in their entirety. A breakdown into various procedures — tubal implantation, in particular — will introduce a bit of optimism into this discouraging area of gynecology.

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PATRON SAINT FOR DECEMBER

Francis Xavier

Francis Xavier (1506-1552), a Spanish Jesuit, spent long, heroic years of service in India, where he is reputed to have cured the sick and even raised the dead. From Goa he went to Japan to carry on there for a while, later returning to India to resume his work at Goa. His one great ambition, however, was to go to China, that vast, untouched mission field he regarded as ready and waiting for just such a one as he. After many frustrating delays and difficulties he finally embarked for China, only to become so ill on the island of Saucian as to be unable to proceed further. Had it not been for a compassionate native who took him to his hut and cared for him until his ensuing death, Francis would have expired alone and abandoned on the open shore, and — ironically — within sight of Canton, his destination — near enough to glimpse but too far to reach.

CULLEN'S SIGN

Peri-umbilical bluish tinge is a sign suggesting ruptured ectopic pregnancy.

A radical is a man with both feet firmly planted — in the air. — Franklin D. Roosevelt

WHAT'S YOUR DIAGNOSIS?

This seventy-three-year-old multiparous widow was admitted to the hospital for surgical treatment of a complete uterine prolapse, cystocele, rectocele and urethrocele with stress incontinence of five years duration. Eight years prior to admission a radical vulvectomy and bilateral groin dissection were performed for a three by four centimeter squamous cell carcinoma of the right labium majus. At the time of this admission there was no clinical evidence of recurrence. The patient's general health was excellent.

A complete workup including a hemogram, IVP, EKG, chest X ray and cystoscopy was essentially negative. A urine culture was sterile. A glucose tolerance curve showed a typical diabetic pattern but a high threshhold for glycosuria.

Four days after admission a vaginal hysterectomy and repair of the cystocele, urethrocele, and rectocele with vaginal closure were performed without difficulty under local anesthesia. The first postoperative days were uneventful. A vaginal drain was removed at 48 hours. Because of an indwelling urinary catheter the patient was maintained on gantrisin one gram q.i.d. The highest record oral temperature during these six days was 99.6.

On the seventh postoperative day the indwelling catheter was removed. The patient voided without difficulty and with a residual of less than 100 cc. From the seventh to the tenth day a low-grade fever developed with evening temperature elevations ranging from 100.4 to 101.0. A urine culture grew E. coli. Gantrisin was increased to two grams four times daily. Complete physical examinations which included a pelvic examination on the sixth and eighth postoperative days failed to demonstrate any other explanation for the fever. A hemoglobin, white count and differential on the seventh postoperative day were normal. The white count was 6,100. The patient remained asymptomatic except for slight lower abdominal discomfort and was up and about daily through the tenth postoperative day.

On the morning of the eleventh postoperative day while still in bed, she was seized by a sudden abdominal pain which although generalized was most intense in the mid-epigastrium. Profound shock and diaphoresis were present. The blood pressure was unobtainable. The radial pulse was 120, weak but regular. The lungs were clear to auscultation. Although generalized abdominal tenderness was present there was no rebound tenderness. The abdomen especially below the unbilicus was moderately distended. Bowel sounds were hypoactive. Rectal examination was not remarkable. An EKG was normal.

The hypotension failed to respond to 200 mg. of aramine administered by dilute intravenous drip. After five units of plasma, the blood pressure was palpated radially at 100 systolic. A hemoglobin was 12.0 grams percent. Oral temperature was 99.0. Intravenous penicillin, chloromycetin and hydrocortisone were administered. An upright X ray of the abdomen demonstrated a large amount of free air under both diaphragms. Some five hours after the onset of the acute problem, her condition although critical was somewhat stable. An exploratory laparotomy was performed.

What's your Diagnosis? Turn to page 1234

The great secret of successful marriage is to treat all disasters as incidents and none of the incidents as disasters. — Harold Nicolson

Cutaneous Respiration in a Newborn—Resuscitator

Preliminary Report*

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THE PRINCIPLES and techniques of utilizing cutaneous respiration in apneic animals placed in an oxygen-pressured immersion chamber have been described elsewhere.[1,2,3] When an animal is submerged in an oxygen-pressured salt solution (Fig. 1) respiration occurs through the skin, although additional gas exchange may occur in the lungs or gastrointestinal tract. The contribution from the lungs depends upon the degree of breathing.

Our present immersion chamber (Fig. 2) has a capacity of 20 liters of fluid, a quick-opening head, two sighting ports, and the necessary inlets, outlets, and electrical conduits. A single reserve and dump tank provides a means for changing the immersion fluid while maintaining the oxygen pressure for the entire system.

Our previous studies with the immersion chamber have been conducted with a view to developing an apparatus capable of maintaining an extrauterine fetus for a long period of time. This present report is concerned with utilization of the pressure chamber as a short-term newborn resuscitator.

Method

Depressed Balb/c fetal mice (gestational ages 16 to 19 days) were delivered by cesarean

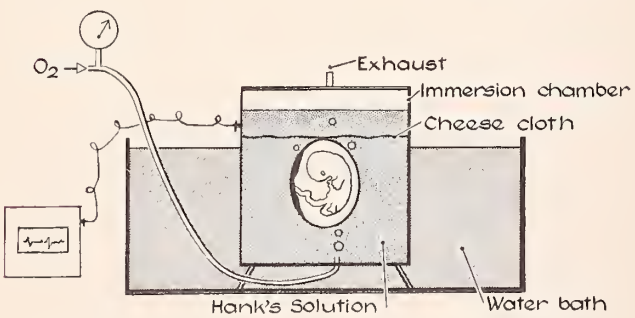


Fig. 1. Schematic diagram of immersion chamber.

*This investigation was supported by Public Health Service Grant #NB 04109-01.
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section. Immediately prior to cesarean section the mother was anesthetized with ether to the point of apnea and then bled of at least half of her blood volume. Seventy per cent of the newborns from such mothers were so depressed that they never gasped.

A litter of newborns was then distributed among at least two of the following five groups:

Group 1. Controls: These newborn mice were placed on a paper towel in the open air and observed for respiratory effort and survival time.

Group 2. Hypothermia Group: These newborn mice were submerged immediately in tap water at 22°C.

Group 3. Standard Immersion Chamber Group: These newborn mice were submerged in Hanks' basic salt solution with 1% tris-hydroxymethyl aminomethane in the immersion chamber at 22°C. Oxygen was bubbled through the solution (as in Fig. 1) and a pressure of 15 atmospheres was obtained after ten minutes. This pressure was maintained for five minutes and then the chamber was decompressed over a period of ten minutes.

Group 4. Hyperbaric Oxygen Group: These newborn mice were placed in a *dry* immersion chamber and oxygen pressure was maintained as with Group 3.

Group 5. Oxygenated Saline Mist Group: The immersion chamber was half filled with Hanks' solution plus 1% tris-hydroxymethyl aminomethane. A screen holding the newborn mice was placed immediately above the surface of the solution and oxygen was bubbled through in the same time and pressure pattern as described for Group 3. The percentages of animals in the various groups showing respiratory activity and/or survival for over six hours are given in Table 1.

Comment

Interest in cutaneous respiration dates back to Gerloch's studies in 1851.[4] Bloxsom, in discussing his Air Lock with its increased oxygen tension, suggested that oxygen diffuses through the infant's skin and implied that such oxygen was then available to other tissues.[5] This concept was subsequently challenged by Apgar and Kreiselman.[6]

Previous studies in this laboratory with rabbit and mice fetuses submerged in the pressure chamber have indicated that an animal will occasionally "survive" despite prior decapitation or ligation of the trachea. This is particularly true in the younger fetuses, the longest persistent heart beat (36 hours) occurring in a 21-day rabbit fetus with a ligated trachea. These observations have been interpreted to indicate that cutaneous respiration can be utilized in the oxygen supply of an apneic animal. The efficient removal of carbon dioxide, however, appears to require some degree of pulmonary function.

The goal of the proposed fetal resuscitator, utilizing cutaneous respiration, has been to oxygenate tissues by simple diffusion of oxygen into the skin capillaries. As soon as the animal responds, the oxygen pressure is rapidly decreased. For the purpose of comparing studies these times have been standardized, but for the individual fetus they are varied as indicated. With short-term hyperbaric oxygen pressure, rapid decompression has not been a problem.

The theoretical advantages of submerging apneic newborns in an oxygen-pressured salt solution as compared with placing them in a dry chamber under similar oxygen pressures are as follows:

1. Immediate hypothermia is readily obtained by submerging newborns in cold saline. Westin has written extensively about the recuperative value of hypothermia for apneic newborns.[7] Hyporthermia also protects against the vague entity of oxygen poisoning.

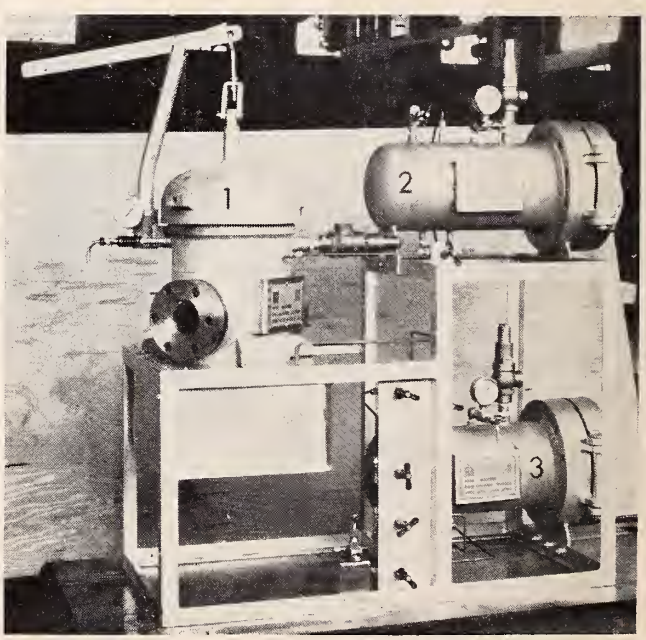


Fig. 2. Photograph of immersion chamber. 1 is immersion chamber; 2 is reserve tank; 3 is dump tank. See text for details.

2. The moist skin may allow a greater cutaneous respiration rate, because the highest rates for man have been recorded when the skin was wet.[8]

3. It is possible for the surrounding media to contain nutrients (dextrose) and buffers tris-hydroxymethyl aminomethane providing greater CO_2 removal and less acidosis.

4. The submerged animal frequently moves about in a solution, thereby providing more available surface for absorption.

The one obvious disadvantage of submerging newborns is that, as part of their general activity, they breathe the surrounding fluid. Despite the uniformly good condition of Group 3 newborns upon removal from the immersion chamber, they frequently became cyanotic and died without evidence of clearing their airways.

The temperature of the animal undergoing hyperbaric oxygen therapy is most important, with maximal survival occurring at 21 to 24°C. In this temperature range, brief exposure to oxygen pressure up to 20 atmospheres has only a small incidence of immediate mortality. This low mortality rate does not appear to exist at higher or lower body temperatures. The poor survival of our Group 4 animals may be due to the fact that very little body cooling occurred.

Whereas cutaneous respiration may be sufficient to oxygenate a small animal, such as a newborn rabbit or mouse, it may be inadequate for larger animals because of their less favorable ratio of surface area to body mass. The largest animal successfully maintained by cutaneous respiration in our laboratory has been a 334 gram human fetus which had a heart beat of 40 per minute after 31 hours in the immersion chamber. Westin has proposed simple hypothermia for the treatment of neonatal asphyxia pallida,[7] but we believe that a newborn resuscitator as proposed here would be a more efficient means of treating these cases.

TABLE 1
Respiratory Activity and Survival of Newborn Mice Subjected to Various Conditions in a Pressurized Immersion Chamber

Type of Treatment	No. of Newborn	No. That Gasped at Least 4 Times	No. Living 6 Hours or More
Controls	42	6(14%)	1(2%)
Hypothermia	31	2(7%)	0
Standard Immersion Chamber	46	43(94%)	6(13%)
Hyperbaric Oxygen	30	27(90%)	15(50%)
Oxygenated Saline Mist	28	25(89%)	21(84%)

Studies are under way to determine what deleterious effects may occur from short-term hyperbaric oxygen therapy. Histologic studies of lungs of survivors have shown a high percentage of "hyaline membrane-like" formations.

Summary

A pressurized immersion chamber utilizing cutaneous respiration has been used as a newborn resuscitator. Hyperbaric oxygen bubbled through a buffered balanced salt solution appears to be an efficient means of promoting respiration in apneic newborn mice and does not interfere with their subsequent survival, as does either hyperbaric oxygen alone or complete submersion in a pressurized chamber.

Addendum

The adult survivors of the above study have since been tested in a maze. Their performance was not significantly different from the accepted norm for the Balb/c Strain.

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Two psychiatrists met on the street one day, and one said to the other, "You're fine. How am I?"

Percent of Patients Delivered at Various Time Intervals After Injection of Win–20,740 and Meperidine		
	Primigravidas	
Win–20,470		Meperidine
18.5%	within 1 hour	34.2%
33.3%	within 2 hours	60.5%
51.9%	within 3 hours	78.9%
66.8%	within 4 hours	86.8%
77.8%	within 5 hours	94.7%
100.0%	over 5 hours	100.0%
	Multigravidas	
Win–20,470		Meperidine
46.9%	within 1 hour	50.0%
75.0%	within 2 hours	76.9%
87.5%	within 3 hours	87.2%
90.6%	within 4 hours	92.3%
92.7%	within 5 hours	96.2%
100.0%	over 5 hours	100.0%

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Evaluation of a New

Apgar-Scores* (1-2 Min.) Win–20,740 vs. Meperidine													
Win–20,740		No. of Patients	10	9	8	7	6	5	4	3	2	1	0
Primigravida													
Open Win–20,740	0.50 mg.	6	2	2	1	1							
Blind Win–20,740	0.25 mg.	11	2	2	3		1	1		1	1		
	0.45 mg.	1				1							
	0.50 mg.	15	6	4	3		1	2					
Meperidine	25.0 mg.	8	3	2		1	1	1					
	50.0 mg.	30	16	5	2		2	5					1
Multigravida													
Open Win–20,740	0.50 mg.	23	10	10	3								
	1.00 mg.	1		1									
Blind Win–20,740	0.25 mg.	26	10	4	7	2					2	1	
	0.40 mg.	2			1	1							
	0.50 mg.	66	33	9	7	4	5	3	3	1			2
	***	2		1	1								
Meperidine	25.0 mg.	23	13	4	1	3	1		1				
	40.0 mg.	1			1								
	50.0 mg.	53	35	9	2	5		1			1		1
	100.0 mg.	1	1										

*The number of Apgar-Scores may be greater than the number of patients because some patients had multiple births.
***No dose given.

Win–20,740 and Meperidine Double-Blind Study Type of Anesthesia Employed in Meperidine Patients	
Multigravida	No. of Cases
No anesthesia	12
Pudendal and inhalation	24
Inhalation	9
Conduction and inhalation	8
Conduction	3
Pericervical and pudendal and inhalation	1
Pudendal	18
	78
Primigravida	
No anesthesia	1
Pudendal and inhalation	20
Pudendal	12
Conduction and inhalation	2
Conduction	2
Pudendal and pericervical and inhalation	1
	38

Nonnarcotic Analgesic

in Obstetrics

THE SEARCH for a more effective and safer nonaddicting analgesic continues. One might hope that in the not-too-distant future a near-ideal analgesic drug will be discovered, one which will produce no clouding of the sensorium, no muscular incoordination, no significant depression of respiration or circulation, no significant effect upon the urinary or gastrointestinal tract, no unpleasant side-effects: one that is nonaddicting and compatible with other drugs and anesthetic agents which are in current use. It should be simple, clean, neat, and inexpensive. Obviously, such a drug has not been discovered as yet.

Recent developments have seen the introduction of a number of strong analgesics such as anileridine, phenazocine, and piminodine; however, none of these has proved to be free of addiction liability. The search has been complicated by the belief that it is not possible to find potent morphine-like analgesics without addiction liability. Therefore, in order to solve this problem the classical ideas had to be abandoned and a new approach found.

Analgesic Antagonists

One of the most interesting new developments in the field of analgesics has been the experience with analgesic antagonists. In 1915, Pohl[1] found that replacement of the methyl group on the nitrogen atom of codeine by an allyl group resulted in the formation of a substance which was not only inactive as an analgesic in laboratory animals but could actually antagonize many of the pharmacological actions of codeine.

Nalorphine

N-allylnorcodeine was the first analgesic antagonist. However, these important observations remained unnoticed by other investigators until 1942 when N-allylnormorphine (nalorphine-Nalline) was reported by Weijlard[2] to have morphine antagonist properties.

This compound proved to be a potent antagonist of the pharmacological and clinical actions of morphine and was capable of precipitating a withdrawal syndrome in morphine addiction. Isbell[3] was unable to induce primary addiction

with this drug in former morphine addicts. In 1954, Lasagna and Beecher[4] observed that for relief of pain in postoperative patients, nalorphine itself was a potent analgesic comparable to morphine. Keats[5] confirmed and extended this observation and found 10 mg. nalorphine was equivalent to 10 mg. of morphine in analgesic potency; however, nalorphine produced bizarre psychic effects in so significant a percentage of patients that the drug was never clinically accepted.

Phenazocine

Recently a benzomorphan derivative,[6] phenazocine, has been reported a potent analgesic in man. It seemed of interest to determine whether antagonists derived from the benzomorphan nucleus possessed better qualities than the antagonists derived from the morphine or morphinan nucleus. The N-substitution of various groups in the benzomorphan nucleus by Albertson and Archer[7] did lead to an interesting series possessing varying degrees of narcotic antagonistic activities according to studies of Harris and Pierson[8] at the Sterling-Winthrop Research Institute. A series of analgesic antagonists was synthesized, and on the basis of satisfactory pharmacological and toxicological studies, selected members were chosen for analgesic assay in man.

Win-20,228 (Pentazocine)

Because of their interest and experience in this area, Keats undertook the first clinical studies with Win-20,228 (pentazocine), a weak narcotic antagonist, and Lasagna and DeKornfeld conducted the first clinical studies with Win-20, 740, a strong narcotic antagonist. Both compounds proved to be potent analgesics in man. In addition, Drs. Fraser, Rosenberg, and Isbell at the Addiction Research Center, Lexington, Kentucky, evaluated both compounds for possible human addiction in former opiate addicts. They concluded that morphine-like addiction liability was very low and of no clinical significance with Win-20,228; therefore it is not being placed under narcotic control. Although studies of Win-20,740 at Lexington are incomplete, there is no evidence to indicate that this compound will possess any morphine-like addiction liability, particularly since it is a more potent narcotic antagonist than Win-20,228. Double-blind studies comparing doses of 0.1 mg. to 2 mg. of Win-20,740 with 10 mg. of morphine sulfate administered intramuscularly to patients with postoperative pain were conducted by Lasagna, DeKornfeld and Pearson,[9] who found that at doses of 0.25 mg. to 2.0 mg., Win-20,740 was equivalent in analgesic potency to 10 mg. morphine sulfate. In addition, in a double-blind study, the respiratory depressant effects of Win-20,740 at 0.25 mg. or 1.0 mg. were not different from 10 mg. of morphine sulfate.

Win–20,470 and Meperidine Double-Blind Study
Type of Anesthesia Employed in Win–20,740 Patients

Multigravida	No. of Cases
No anesthesia	21
Conduction (unspecified)	4
Inhalation	14
Pudendal and inhalation	28
Conduction and inhalation	7
Pudendal	18
Pericervical	2
Pericervical, pudendal and inhalation	1
Perineal infiltration and inhalation	1
	96
Primigravida	
Inhalation	2
Spinal	2
Pudendal	4
Pudendal and inhalation	8
Inhalation and conduction (unspecified)	5
Pudendal and caudal	1
Pudendal, pericervical, and inhalation	4
Saddle block	1
	27

Methods and Materials

Preliminary experience with Win-20,740 for relief of pain in labor was obtained from a study on an open basis in 30 patients beginning with 0.25 mg. doses intravenously. This dose was increased to 0.5 mg. intravenously where more effective analgesia was obtained with no undesirable side-effects on the patient or the newborn infant. Consequently, a double-blind study on 239 patients was conducted employing 0.5 mg. intravenously of Win-20,740 (123 patients) and 50 mg. intravenously of meperidine hydrochloride (116 patients).

The clinical population in the hospital was composed of all races randomly selected. On admission every patient received a complete physical examination. A barbiturate or scopolamine was administered when indicated. The initial dose was given when the patient was in active

Double-Blind Study — Win–20,740 and Meperidine
Summary Table

	Win–20,740		Meperidine	
	Number	Percent	Number	Percent
Gravidity				
Primigravida	27	21.95	38	32.76
Multigravida	96	78.05	78	67.24
	123	100.00	116	100.00
Primigravida				
Excellent	3	11.1	7	19.4
Good	12	44.4	18	47.4
Fair	9	33.3	7	19.4
Poor	3	11.1	6	15.8
	27	100.0	38	100.0
Multigravida				
Excellent	13	13.5	5	6.4
Good	48	50.0	39	50.0
Fair	26	27.1	25	32.1
Poor	9	9.4	8	10.3
Unstated			1	1.3
	96	100.0	78	100.0
Primigravida and Multigravida Combined Responses				
Excellent	16	13.0	9	8.0
Good	60	49.0	57	49.0
Fair	37	30.0	32	28.0
Poor	12	10.0	7	6.0

labor and relief of pain was indicated. In a few instances the drug was repeated, depending on the severity of the pain. Various types of anesthesia were used for delivery.

Patients were observed closely during labor for onset of action, degree of pain relief, duration of relief, side effects, changes in fetal heart rate and quality, blood pressure and respiratory rate changes, frequency and quality of uterine contractions. One minute after birth, the Apger-Scoring system was used to evaluate the infant's condition.

Results

Results in this double-blind study are considered under three groups: (1) Effects of Win-20,740 and meperidine on the patient, (2) Effects of Win-20,740 and meperidine in labor, and (3) Effects of both on the fetus.

Effects on the Mother

The analgesia obtained with Win-20,740 was rated as excellent in 13%, good in 49%, fair in 30%, and poor in 10% of the patients as compared to excellent in 8%, good in 49%, fair in 30%, and poor in 6% of the patients with meperidine. Combining the first two groups indicated that analgesia with Win-20,740 was satisfactory in 62% of the patients, and in 66% receiving meperidine. These results are not statistically significant, however, indicating that for control of labor pain, 0.5 mg. of Win-20,740 is equivalent in analgesic potency to 50 mg. of meperidine when both are administered intravenously. In all cases except a few, a single dose of Win-20,740 was sufficient to provide analgesia. Clinical observations indicated that the onset of action of Win-20,740 was rapid and that maximum analgesia was obtained in 15 minutes. Also average duration of pain relief appeared to be more prolonged with Win-20,740 than with meperidine. An interesting and noteworthy observation was the lack of a significant degree of depression with Win-20,740. The patients frequently slept between contractions but could be easily alerted to co-operate when necessary. Side effects with Win-20,740 were negligible.

Summary of Apgar Scores Reported Below Seven

Sixteen patients (13%) who received Win-20,740 had an Apgar-Score of six or seven. In these sixteen, complications such as breech delivery, marginal sinus rupture, uterine inertia, premature rupture of the membranes, premature delivery with premature infant, toxemia, and cord around the neck occurred in all but four cases. In the remaining four (25%) no complications were noted. Thirteen patients (11%) who received meperidine had an Apgar-Score of six or seven. Complications such as toxemia, breech presentation, premature rupture of membranes, pre-eclampsia and Rh iso-immunization, occurred in all but six cases (46.1%).

Fourteen patients (11.4%) who received Win-20,740 had an Apgar-Score of five or less. In these cases, complications of pre-eclampsia, hypertensive cardiovascular disease, aminotomy, marginal sinus rupture, fetal death in utero, secondary inertia, fetal bradycardia, and aspiration occurred in all but one (7%). Thirteen who received meperidine had an Apgar-Score of five or less. Complications such as brow presentation, uterine inertia, premature rupture of membranes, delivery of twins, polyhydraminos, stillbirth, premature labor and delivery of premature infant, and breech presentation occurred in all but five cases (38.7%).

See the accompanying tables.

Comment

The rather large number of multiparas who delivered without additional anesthesia emphasized the effectiveness of the pain relief secured.

There has been no observable prolongation of labor — no increased blood loss. As evidenced by the Apgar-Scores, there has been no adverse effect on the newborns. The patients have been calm and quiet. There has been no additional care imposed on the nursing staff.

These drugs have been employed with many kinds of additional anesthesia and drugs currently used as indicated.

The intravenous route of administration has been used because of its flexibility in timing and predictable response.

Conclusions

Experience with a new narcotic antagonist drug, Win-20,740 has revealed this drug to be an effective analgesic. On purely theoretical considerations, such a drug should be particularly applicable for relief of pain in labor. Further evaluation seems warranted.

Summary of Side Effects in Win–20,740 and Meperidine Study

	Win–20,740	Meperidine
Total Number of Patients with Side Effects	39	33
Elevated systolic pressure	2	1
Elevated diastolic pressure	2	1
Depressed systolic pressure	7	4
Depressed diastolic pressure	1	3
Elevated pulse rate	1	–
Elevated respiratory rate	6	6
Depressed respiratory rate	1	–
Depressed fetal heart rate	2	3
Dizziness	4	7
Feeling of drunkenness	2	–
Uterine inertia	8	3
Irregular contractions	1	2
Disorientation and confusion	1	–
Excitement	1	–
Hot feeling	1	–
Nausea	1	1
Emesis	–	3

Note: Blood pressure changes greater than 20 mm. Hg., pulse rate changes greater than 10, fetal heart rates above or below 120 to 160, and respiratory rates above or below 12 to 20 were recorded in above data.

Acknowledgement

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ANSWER TO WHAT'S YOUR DIAGNOSIS

(From page 1226)

At laparotomy a ruptured pelvic abscess with generalized peritonitis was found. Pure cultures of E. coli were grown from peritoneal exudate. The patient expired twelve hours after laparotomy. At surgery and again at autopsy the entire bowel from stomach to rectum was examined in detail. No perforation was found. The free air under the diaphragm seen on X ray is thought to be a residual from the surgery eleven days before.

Enzymic Steroid Conversion

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THE RAPID progress in recent years in the development of techniques for the detection of individual steroids has made possible the detailed study of the production of these substances by tissues in vitro. This has in turn permitted the examination of differences between normal endocrine tissues and endocrinologically active tumors, a matter of much interest in view of the light which the behavior of neoplastic cells may shed on normal physiology.

The steroid metabolism *in vitro* of one granulosa cell tumor has been reported. The present paper is concerned with enzymic steroid conversions in a second such ovarian tumor.

Case Report

A 9-year-old girl was admitted on February 14, 1962, with a chief complaint of "early menstruation." She had experienced normal growth and development until the fall of 1960 when the mother noted for the first time a small amount of vaginal bleeding. There was also the first appearance of pubic hair which increased in amount thereafter. The bleeding reappeared two months later and the child was seen by a physician who administered medication. In December of 1960, at age 7, it was noted that she had begun to grow quite rapidly, both in height and weight. In September of 1960 the parents observed the beginning of breast development which had continued since that time. In March of 1961 there was another episode of vaginal bleeding and again medication was given by the physician. In May of 1961, after another episode of bleeding, a course of "pills" was prescribed; but the bleeding episodes continued unabated. The patient was otherwise well.

On physical examination the girl was found to be both tall and heavy for her age. Breast development compatible with early adolescence was noted. The heart was normal and blood pressure was 120/80. There was a normal female distribution of pubic hair. The external genitalia were of adolescent configuration. A small amount of vaginal bleeding was present. On bimanual examination of the pelvis a firm 8 cm. mass could be felt in the left adnexa. The uterus was approximately 3 x 4 cm. in size.

X-ray examination of the extremities demonstrated bone age compatible with a chronological age of 13.

No chorionic gonadotropin or follicle-stimulating hormone was found in the urine.

At celiotomy on February 21, 1962, a solid tumor measuring 10 x 8 x 8 cm. was found replacing the right ovary. The left ovary measured 1.5 x 0.5 x 0.5 cm. and was normal for the premenarchal state. The uterus measured about 3 cm. from one cornual end to the other. A right salpingo-oophorectomy was carried out. The patient's immediate postoperative course was unremarkable.

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In the period since the operation there has been steady regression of the secondary sexual changes. Very little breast tissue can be palpated and the pubic hair has virtually disappeared. Rectal examination confirms the presence of a tiny uterus and no other pelvic masses.

The Tumor

The ovarian tumor weighed 254 grams. On cut section it had a predominantly fibrous appearance with occasional patches of yellowish tissue. The fibrous tissue had a whorled appearance. A 1 mm. thick capsule enclosed the tumor. On microscopic section there were two differing general patterns of growth. In some areas there were very large, evenly staining, somewhat basophilic cells, which were present in solid sheets with only occasional connective tissue septa. In other areas the predominant cells assumed a follicular pattern with a larger amount of interspersed connective tissue. In this portion of the tumor rather typical Call-Exner bodies could be found. Staining with Sudan III demonstrated considerable fat in the glandular portions of the tumor. The diagnosis was granulosa cell tumor of the ovary.

Chemical Analysis

Immediately after excision, a portion (20 gr.) of the tumor was minced on a wooden block with a multiple razor blade instrument and incubated with C^{14} labeled steroids according to the procedure outlined in Table 1. At the end of the incubation 3-4 volumes of warm acetone were added and the samples allowed to stand overnight to flocculate the precipitated protein. The steroid products were extracted with four additional aliquots of warm acetone and filtered through paper. After removal of the acetone under reduced pressure the water fraction was extracted with five aliquots of chloroform, which, when evaporated, yielded a residue which in turn was partitioned between 70% aqueous ethanol and hexane. The residue from the ethanol fraction (which contained all of the radioactivity) was dissolved in 1:1 chloroform methanol and chromatographed in Zaffaroni's[1] chromatographic system.

Phenolic steroids were separated from the neutral steroids by the procedure previously described.[2] The chromatograms were scanned for distribution of the radioactive steroids on an automatic recording windowless gas flow detector. Rechromatography and identification of the various products were carried out after addition of appropriate nonradioactive chromatographically pure steroids by methods described previously.[2,4,5] Detection of unsaturated carrier steroids was accomplished by means of ultraviolet scanning at 254 mμ. The saturated ketosteroids were detected on the paper by the Zimmermann reaction. Estrogens were detected by the $FeCl_3$-$K_3Fe(CN)_6$ chromogen method of Barton et al.[3]

Chemical Composition

Radioactive steroid products observed from *in vitro* incubation of progesterone-4 C^{14} and other C^{14} labeled steroids with granulosa cell tumor tissue are qualitatively similar to those found in normal ovarian tissue.[2,4,7-10] There are, however, variations in the rates at which certain products are formed in the sequential chain of hormone synthesis in this tumor. The quantities of products formed are recorded in Table 2. Previous *in vitro* incubation studies with normal human ovarian tissue unstimulated with chorionic gonadotropin failed to demonstrate estrogens as products of progesterone metabolism. In the current studies, however, estradiol has been

TABLE 1
Incubation Procedure

Experiment No.	Tissue	Substrate	Spec. Act. $\mu c/\mu$ Mole	Quantity Incubation mμ Moles/g Tissue
1	Tumor (0.5g)	Progesterone-4-C^{14}	8.8	45.5
2	Tumor (0.5g)	17αOH-Progesterone-4-C^{14}	13.8	2.9
3	Tumor (0.5g)	Testosterone-4-C^{14}	21.5	3.0
4	Tumor (0.5g)	Androstenedione-4-C^{14}	2.24	35.7

Duplicate quantities of minced tissue and radioactive steroids were incubated in a medium containing 5 ml. of 0.05 M phosphate buffer ($Na_2HPO_4KH_2PO_4$), pH 7.35, 0.025 M KCl and 0.004 M $MgCl_2$ for 2 hours at 37° C. in air. A TPNH generating system consisting of 2.0 μMoles TPN, 2.0 μMoles glucose-6-phosphate and 1 Kornberg unit glucose-6-phosphate dehydrogenase was added to each flask.

TABLE 2
Metabolites Isolated after Incubation of C^{14} Steroids with Granulosa Cell Tumor Tissue

Steroids Isolated	mμ Moles Steroid / g Tissue			
	Progesterone-4-C^{14}	17OH-Progesterone-4-C^{14}	Androstenedione-4-C^{14}	Testosterone-4-C^{14}
High Polar Unidentified	0.76		20.76	0.19
4-Pregnene-17α, 20α-diol-3-one	8.20	0.64		
4-Pregnene-6β-ol-3,20-dione	0.34			
Unidentified	0.34			
4-Pregnene-17α-ol-3,20-dione	7.54	1.20		
4-Androstene-17β-ol-3-one	0.38	0.06		
11-Deoxycorticosterone	0.26			
4-Pregnene-20α-ol-3-one	1.76			
4-Pregnene-20β-ol-3-one	0.06			
Androstane-3, 17-dione	2.80			
Androstene-3, 17-dione	0.01		0.80	
Progesterone	8.50			
Pregnane-20α-ol-3-one	0.34			
Pregnane-3, 20-dione	0.60			
Allopregnane-3, 20-dione	0.65			
Estradiol	0.36	0.10	8.52	2.31
Estrone			3.66	0.67

TABLE 3
Androgen to Estrogen Transformation in Granulosa Cell Tumor Tissue

	Incubation time hr.	Incubation μM/g tissue	Androstenedione transformed %	Androstenedione transformed mμM/hr. / g tissue	Tetosterone transformed %	Tetosterone transformed mμM/hr. / g tissue	Ref.
Granulosa cell tumor (Human)	3	.02			81	5.67	Marsh
Granulosa cell tumor (Human)	2	.035	31	5.6			This Study
Granulosa cell tumor (Human)	2	.003			94	1.4	

identified as a product of both progesterone-4-C^{14} and 17αOH-progesterone-4-C^{14} metabolism. Estradiol has been observed as a major product, both in this tumor and normal ovaries, when adrostenedione-4-C^{14} and testosterone-4-C^{14} were employed as substrate. In this granulosa cell tissue the conversion rates of both androstenedione and testosterone are markedly elevated (Table 3) in comparison to those reported for other ovarian tissues.[7-10] Included in the table are data from the experiments of Marsh *et al.*[6] who also have studied a granulosa cell tumor. With these two substrates estrone also was identified as a metabolic product in significant yield. 11-Deoxycorticosterone as a product of progesterone metabolism was formed in small quantities by the tumor tissue. The synthesis of deoxycorticosterone has not been reported for normal human ovarian tissue although it has been observed in the metabolism of progesterone in a masculinovoblastoma.[2] Also of interest in this granulosa cell tumor is the relatively high quantity of androstane-3, 17-dione formed in the course of progesterone-4-C^{14} metabolism. In normal ovarian tissue, androstene-3, 17-dione is observed. In this tumor only a trace was found. This suggests a marked increase in the activity of the enzymic mechanism involved in the reduction of the $\triangle^4$ unsaturated bond in the tumor tissue. The relative increase in the formation of pregnane compounds also is consistent with this suggestion. The tumor appears to possess normal 6β and 17α-hydroxylation and 20 reducing capacities.

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BYGONE GOUT "CURES"

For the antiquarian interested in ancient and obsolete materia medica, literature provides some quaint and preposterous cures for age old diseases afflicting man.[1]

The simplest and most disarmingly naive treatment for gout was that advocated and employed by Hippocrates in 300 B.C., which persisted for some 800 centuries thereafter: namely, the burning of flax adjacent to the gouty body area. Presumably the disease was allergic to flax smoke.

Apocryphal as it may now sound, the medical advice of Aetius of Mesopotamia about 500 A.D. consisted of the following 12-month program:

"In January: take a glass of pure wine every morning; February, eat no beets; March: mix sweets with eatables and drinkables; April: refrain from horse radish; May: eat no polypus fishes; June: take cold water every morning; July: abstain from venery; August: eat no mallows; September: drink only milk; October: garlic must be eaten; November: bathing is prohibited; December: eat freely of cabbage."

Around 550 A.D. Aetius' unique recommendation was superseded by Alexander of Tralles' repellent prescription of:

"A mixture of caraway seeds, anise, rhubarb, wolf's milk, vinegar, honey, dill, pepper, ginger, aloes, and — pretty much by choice — colchicum."

In the seventeenth century a Dr. Daniel Sennert of Prussia proffered this bizarre combination:

"A poultice composed of marsh-mallow leaves, cabbage, barley, and frog sperm."

Also at the same time a Dr. John Loselous of Germany presented his gout patients with the following startling directions:

"Shave with a razor the hair off both legs, and at the same time cut the nails of hands and feet. This should be in the spring when sap is flowing, and the day before new moon. Make a hole right into the heartwood of a poplar or oak tree and insert the hair and nails. Stop it tight with a plug made of a branch of the tree, and the transplantation is perfect. Cut off close to the tree that part of the plug that sticks out, and the next day plaster the place well with cow dung. If the patient does not in the next three months feel the *malum* again, he can credit it to the tree."

The year 1735 produced one mind-over-matter practitioner, Sir Richard Blackmore, who loftily and authoritatively asserted: "Fright can cause and cure an attack." Obviously, in his opinion gout was psychosomatic.

Of all the above fantastic specifics only one, colchicum, again saw the light after long eclipse. Its use was revived in 1763, reportedly by Baron von Strenck of Vienna, and was later introduced into the United States by Benjamin Franklin, himself a gout sufferer.

Ironically, colchicum was the one effective ingredient in Aetius' formula, but included as a purgative only, and later omitted, thereby markedly diminishing the efficacy of his prescription.

1. Berton Roueche "Eleven Blue Men."

Marriage Therapy

IRVING C. BERNSTEIN, M.D.*
Minneapolis, Minnesota

One of eight married individuals has been married more than once.[1] One of four married couples will be divorced.[2] These startling figures indicate that what is being done in the field of marital discord has not been successful, due perhaps to the fact that this area of medicine has not been adequately handled either by physicians or by those who have taken over their responsibility. This field of marriage therapy is in the province of medicine, because an unstable marriage indicates that one or both participants are emotionally ill and because the stresses incident to an unhappy marriage are important etiological factors in the production of psychosomatic symptoms.

When two people are about to get married, or when they are already married and in trouble, they may consult a physician. In addition, many patients consult a physician for somatic symptoms which are related to marital conflicts, and the physician must diagnose these. If a physician is to help these patients, he must be able to evaluate the personality of the principals involved; he must at least be able to classify them into five groups: normal, organic, neurotic, psychotic, or psychopathic. If a physician is unable to do this, he should not become involved in marriage therapy; he will be in the same position as a physician attempting to perform complex surgery when he is capable of handling only routine procedures. At best, he will provide little help — at worst, he may do severe damage.

*Clinical Associate Professor Psychiatry, Clinical Associate Professor Obstetrics and Gynecology, University of Minnesota.

Mental Status Determination

Before attempting to institute treatment of an unhappy marriage, the physician should do a mental-status examination of the partners; he should study each as to appearance and manner, stream of talk and activity, emotional tone, mental content, intelligence and intellect, and insight. Spontaneous discussion by the patient will reveal more of his feelings than rigid formalized questioning by the physician. Judicious interviewing in such a way that psychopathological mental content reveals itself is a fine art for which every physician should strive. If he manifests genuine interest and understanding and is skillful in interviewing, the couple will not only reveal their feelings, but often be eager to do so, and will not spend all their time complaining of the spouse.

If the physician decides the patient is organic, sociopathic, psychotic, or severely neurotic, definitive help or advice from a psychiatrist should be obtained; but if he is confident the couple are only mildly neurotic or relatively normal, marriage therapy may proceed.

Marriage Therapy

Marriage therapy is a kind of psychotherapy, definable as a physician's manipulating the relationship between himself and his patient in such a way that improvement or emotional growth occurs. Laidaw[3] defines it as "a form of short term psychotherapy dealing with interper-

sonal relationships, in which problems relating to marriage are the central factor." Marriage therapy requires (1) a couple who want help, (2) a physician who is trained in handling emotional illness and whose ability is recognized by the patient and society, (3) a structured relationship where there is constant interplay between the therapist and patient, and where the patient is convinced all information will be kept in strictest confidence.

Uninterrupted Interview

In order to set up this structured procedure, the physician should conduct his interviews in an office which has comfortable chairs and where he is not interrupted every few minutes by phone calls, thereby appearing to underestimate the importance of the interview. The physician should indicate by having some disposable tissues about that he is not adverse to having someone cry as the interview proceeds. He must be realistic about setting definite time limits for the consultations, as this will encourage the patient to get to the point as quickly as possible, and to realize that the doctor's time and skill in listening and interpreting are valuable.

The physician must remember he is not omnipotent, all-seeing, all-knowing, and that he cannot "save" everybody's marriage — only that he will do the best he can in a difficult situation, the solution of which depends not only on his abilities, but also upon the demands the couple wishes to make on him, as well as upon their own personalities.

Enlightened Listening

If the psychotherapeutic situation has been structured correctly, the couple or individual will talk spontaneously and this will point out the problem more accurately than questioning.

Listening may begin in self-defense; but it soon becomes an interest, then a habit, then an enlightenment, and finally, a valuable therapeutic tool. Obviously the physician should not only listen but make appropriate remarks to keep the interview progressing and to assure the couple that he is understanding, interested, and unbiased.

Self Decision

The couple, or one of its members, may ask for advice; in general, a good therapist gives very little. In marriage therapy, although advice is asked for, it is not really wanted. What is desired by the couple is the opportunity to talk out a problem with a trained individual in an unprejudiced atmosphere and then to make a decision for themselves.

Sexual Incompatibility

Patients come to a physician many times and make a statement such as: "We have a perfect marriage except we do not get along sexually." This should not be accepted without question by the physician, as generally when there is sexual incompatibility, something else is wrong with the marital relationship. On the other hand, if a marriage is relatively stable, some kind of mutually satisfying sexual adjustment will be made. It appears that in our culture, a great percentage of women have some difficulty in adjusting sexually, in that orgasm does not occur or is incomplete; yet most of them do not complain of this to any degree, if the marriage in general is otherwise satisfying. The normal woman is satisfied giving sex in order to get love, while a man gives love in order to get sex, a paradox related to the fundamental masochism of women and the sadism of men.

Intimacy Should be Individual

When an attempt is being made to help a couple complaining of sexual incompatibility, certain principles should be adhered to. Of prime importance is that the physician should not advise either of the marriage partners how to proceed in the sexual act, as this intimate behavior should be individual, private, and experimental, and not dictated by anyone. However, if some aspect of the sexual behavior is objectionable to the other partner, the physician can handle this effectively by bringing into consciousness the realization that forcing a partner to do what is objectionable is not adult behavior; that it indicates that an essential component of the marriage — namely, compromise — is absent; and that, therefore, further marriage therapy is advisable.

The Rules of Man and Wife

The physician also should not attempt to set up a couples's marriage to mirror his own. Every couple have their own personalities and problems and must be handled individually. The problem of roles in our culture must be carefully considered. For the male, his role is well established; he is to work and not stay at home and care for children. For the woman, her role and

behavior can be more varied, just as in childhood. It is acceptable in our culture for a woman to work if she has the emotional need and if her children and husband are provided for. The physician should understand that the usual desire for a woman to want children is not so prevalent in men. Many men are not eager for their wives' pregnancy, especially for their first, as it threatens them; they are afraid they will lose "the mother" they married. An emotionally stable woman can adroitly handle this problem if she loves and understands her husband, and allows and encourages him "to grow."

Preparing for Marriage

Marital preparation from the emotional point of view does not begin when the boy meets the girl, or when they start planning their wedding. It starts as soon as an infant is born and continues to adulthood, the most important basic abilities to adjust being established by age 6-7. Therefore, in premarital and marital therapy, besides helping the present situation, the next generation is being prepared for marriage. Parents must start preparing their children for marriage as soon as they are born. Every physician must understand this, and the dynamics of psychosexual development, and bring these to his patient's attention. A boy baby must be raised as a boy and a girl as a girl. This means, among other things, no dresses on boy babies — though not necessarily no overalls on girl babies.

In our culture, more variation in the behavior of adult women is allowed; therefore, more leeway is permitted in the behavior of female children. For example, a physician would not be too concerned if a woman came to consult him in shorts but would be alerted if a male patient appeared wearing a dress. This tolerance of, and lack of demand for conformity in women, may be partially responsible for the fact that psychiatrists have more women patients in their offices than men.

The Early Years of Life

During the early years of life the child should be exposed to the happy marriage of his parents — to a male and female who love each other. So exposed, he has the best opportunity to go through the oral, anal, and genital periods of life successfully, and thus be able to handle adequately the various problems of living that present. Even in the very early years of life, in the oral and anal stages, the child acquires some ideas of sex; that is, how a man and woman get along and the significance of various parts of the body. Many seemingly insignificant incidents, even in the first few years of life, are important: what is said, what is not said, what is seen, what is not allowed to be seen; all these contribute to the child's ideas of "sex." Unfortunately, from these early life experiences many children get the impression that sex is vulgar, shameful, or bad.

The Oedipal Stage

The child between three and seven is in the genital or oedipal stage, in which specific ideas of sex and marriage are exposed. Here the child of one sex becomes attached to the parent of the opposite sex, and if that one fails to encourage the child to identify with the other parent, the psychological groundwork for maladjustment in marriage is produced. Other behavior may complicate the child's environment and lead to subsequent problems. The mother may sleep with her son when dad is away because "he is lonely and fearful." (She is the lonely one.) She may unduly stimulate her son when she bathes him. The father may enjoy fondling his daughter. This system of "sex education" is quite effective and contributes to the fact that most girls do not get pregnant illegitimately and that so many are relatively frigid after marriage.

Summary

Everyone's early life will leave some emotional scarring, and thus all of us are to some degree neurotic. The potentially healthy aspect of the whole problem is that some neurotics, despite traumatic childhoods, make fine marriages and fine parents. These are individuals who pit a fundamentally sound set of personal values against the destructive expressions of their neuroses. Neurosis in individual personality is not, therefore, the sole factor which predetermines the fate of a marriage, family adjustment and subsequent children. Were it so, there would be little hope for the world. The saving grace is that in certain neurotic marital relationships the effect each partner exerts upon

the other is a favorable one and neutralizes the injurious effects of their neuroses. Within the matrix of marriage, the personality of each partner improves.

Relatively normal individuals marry someone not unlike the opposite parent. It can be well noted at family gatherings such as funerals and weddings how the spouses of sisters and brothers tend to resemble their common parents-in-law. This is what would be expected in well-adjusted groups; for example, whom would a relatively normal man prefer to be with forever than someone like his mother. This indicates that he went through the oedipal state well, identified with his father, and married someone similar in actions and behavior to his mother.

If a physician is called upon to give premarital advice to a couple, one of whom is marrying outside of his faith, color, and social position, it should be kept in mind that these individuals may be handling the residuals of early problems or conflicts by this type of behavior. This does not mean the marriage cannot be a success. However, it should be emphasized that the more two people are alike, the more the possibility of a successful marriage. This may explain why arranged marriages in the past lasted longer. In these the parents deliberately selected for the child a partner of the same culture, religion, social status, etc. In that era partners were married and then fell in love; now partners fall in love and then marry. Today there are some "experts" who advocate going back to the past way of arranging marriages.

In marriage therapy the physician must help the couple realize that marriage is the permanent thing in life, not the relationship with the parents or children. In fact, children should be so reared that when they reach adulthood, the parents are happy to have them leave and the children are happy to go in order to establish a home as happy as the one they left. If this kind of planning is successful, the couple will mature together and be eager for the future when they can again be alone and secure just with each other.

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2. Marriage Counseling, The Psychiatric Bulletin Vol. 7, No. 3, Summer 1957. Published by Medical Arts Publishing Foundation, University of Texas, 6723 Bartner Drive, Houston Texas, R. W. Crumly, executive editor.
3. Laidaw, R. W.: The Psychiatrist as Marriage Counselor. Amer J Psychiat 106:732, 1950.

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Robert H. Durham, M.D.

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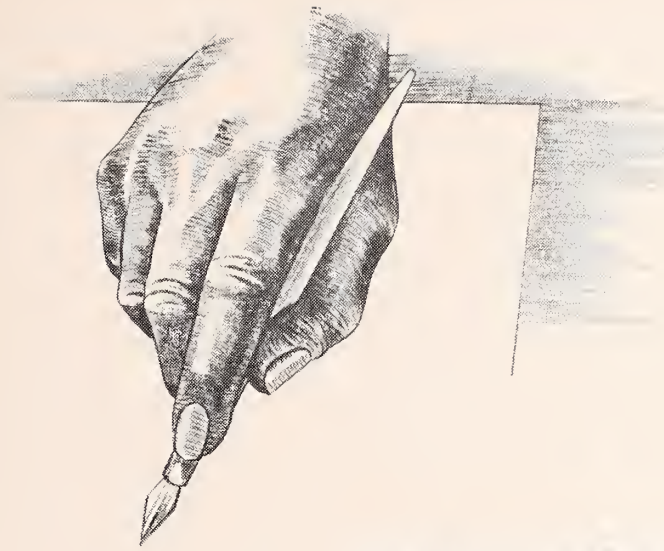
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EDITORIALS

John Leyland McKelvey

THIS ISSUE of MINNESOTA MEDICINE honors John Leyland McKelvey, M.D., C.M., on the occasion of his twenty-fifth year as Professor and Head of the Department of Obstetrics and Gynecology of the University of Minnesota Medical School.

On October 25th and 26th many of his friends and former students in obstetrics and gynecology gathered in Minneapolis to celebrate this occasion with scientific and social meetings. The scientific program presented is listed on page 1251. Several papers on this program appear in their entirety or as abstracts in this issue of MINNESOTA MEDICINE. Several others are scheduled for subsequent issues. The following biographical sketch is condensed from the comments made at the October 26th banquet by Dr. McKelvey's good friend Dr. Charles H. Peckham of Berkeley, California.

John Leyland McKelvey was born in Kingston, Ontario on April 11, 1901. He was the son of Robert J. and Evelyn (Johnston) McKelvey. The family had resided in Kingston for several generations and both his father and grandfather had operated a hardware and plumbing business in that city. His father died when he was in his middle teens, and John, from that date, assumed the role of head of the family. His early education was in the schools of Kingston and, upon his graduation from Kingston Collegiate Institute in 1919, he entered Queen's University. He obtained his B.A. in 1923 and his M.D., C.M. in 1926. A few excerpts from the 1926 University year book summarize his undergraduate record.

"Senior rugby from first till graduating year. Known throughout Canada as a true sportsman and one of the greatest middle wings of all time. Member of the Dominion Champions, 1922 (captain), 1923 and 1924. Intercollegiate Champions, 1935. Starred on defense in hockey. Won the Intercollegiate Heavyweight Boxing Championship."

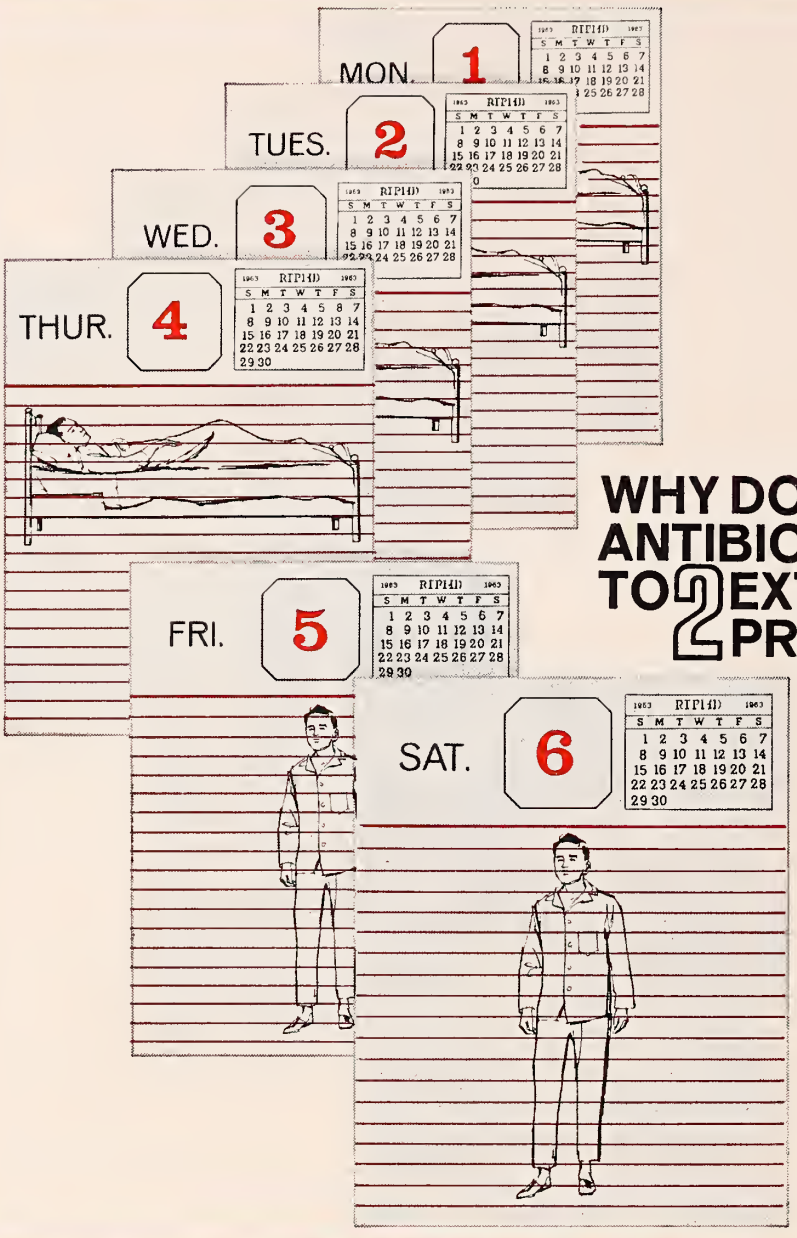
"His work for student interests has been most productive. As a member of the Athletic Board of Control, he helped materially to procure the Jack Harty Arena. When the president of the A.M.S. (an undergraduate society) his administration was considered one of the strongest and most progressive in history. He launched the campaign which made the Students' Union a realization."

"His standing in class has always been good, despite his sacrifice of time for the school. His one weakness — his love for Queen's — and the feeling has been mutual."

As evidence of the University's respect, he was granted an honorary LL.D. in 1954 on the occasion of the hundredth anniversary of its founding.

After receiving his M.D. degree, two years were spent at the Montreal General Hospital as interne and resident in Obstetrics. During these years in Montreal, Dr. McKelvey's chief was Herbert Little. Dr. Little had been one of J. Whitridge Williams' early residents in the ob-

Continued



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stetrics Department at Johns Hopkins Medical School. In 1928 Dr. McKelvey received an appointment as interne in Obstetrics at the Johns Hopkins Hospital. Dr. Little undoubtedly had much influence in this arrangement. After two years at Hopkins Dr. McKelvey obtained a Halsted Fellowship for foreign travel. A leave of absence from Johns Hopkins was arranged and in the summer of 1930 he left Baltimore for two years. Before leaving for Europe there was a vacation in Montreal when he paused to marry Ruth MacKinnon of Chesley, Ontario, who had been a classmate of his undergraduate days at Queen's.

The first year abroad was spent at the University of Kiel, Germany, under Robert Schroeder. There followed six months in Berlin with Robert Meyer the father of obstetrical and gynecological pathology whose later days were spent in Minneapolis in the Department of Obstetrics and Gynecology at the University of Minnesota Medical School. The last six months were passed in travel throughout the medical centers of Germany and Great Britain and in Vienna. This rounded out Dr. McKelvey's European training which gave him a breadth of vision which has been invaluable to him since.

In the fall of 1932 Dr. McKelvey returned to Baltimore as Assistant Resident in Obstetrics at Johns Hopkins Hospital. The following year he was appointed Resident. At the end of his year as Resident, he was invited to remain and accepted an appointment as instructor in Obstetrics at the Medical School.

When Dr. Nicholson J. Eastman left Baltimore to return to China as Head of the Department of Obstetrics and Gynecology at Peking Union Medical College, an institution sponsored and financed by the Rockefeller Foundation, most of his activities at the Johns Hopkins clinic were assumed by Dr. McKelvey who immediately demonstrated his aptitude as a teacher and investigator. His ability as a clinician had already become evident during his house staff days.

At the end of his first year on full-time, Dr. McKelvey was invited by Dr. Eastman to come to China as his second-in-command. In the early Fall of 1934 this appointment was accepted and he left Baltimore.

Dr. McKelvey remained in China for four years, first as Associate Professor and later as Professor and Head of the Department of Obstetrics and Gynecology at Peking Union when Dr. Eastman returned to Baltimore as Professor of Obstetrics at Johns Hopkins. Dr. McKelvey's tenure at Peking Union was considered most valuable. His strong desire to train native physicians to replace English, American and other foreign doctors on the Medical School staff, was highly appreciated by the Chinese themselves.

In 1938 John McKelvey was invited to return to this country and to the University of Minnesota Medical School as Professor and Head of the Department of Obstetrics and Gynecology. Although bound to Minneapolis during the war and postwar years, Dr. McKelvey's interest in foreign medical affairs persisted. In the summer of 1958 he attended clinics in Melbourne, Sydney, and Perth, Australia, and Auckland, New Zealand as a visiting professor. The past year was spent in Singapore where he was instrumental in reorganizing the Department of Obstetrics and Gynecology of the Medical School. His efforts resulted in the installation of a Malayasian Chinese physician as chief, an increased teaching staff, and recognition of the department by the British Medical Council as an accredited training school in obstetrics and gynecology.

Of his many accomplishments, Dr. McKelvey is proudest of the many physicians he has trained who practise their specialty with credit throughout the country — especially those whom he has launched on academic careers both on his staff and elsewhere.

It is these physicians who dedicate this issue of MINNESOTA MEDICINE to their beloved friend and teacher — John Leyland McKelvey.

Konald A. Prem, M.D.
Associate Professor
Department of Obstetrics and Gynecology
University of Minnesota Medical School

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A Great Teacher

MINNESOTA MEDICINE is happy to take part in the observance of the 25th year of John Leyland McKelvey's service to the State as head of the department of obstetrics and gynecology at the University of Minnesota. This issue is devoted to papers presented by his students. Dr. McKelvey is known for his devotion to the art of the teaching of medicine to medical students, interns, and post-graduate fellows. His tenure at the University of Minnesota has been devoted primarily to teaching. The judgment of a teacher lies in the quality of his pupils. By this criterion, by the accomplishments of his students, he must be rated as a "great teacher." MINNESOTA MEDICINE and its Board of Editors in this issue salutes Professor McKelvey.

Reuben Berman, M.D.
For the Board of Editors

Letter to the Editor:

Lewis Carroll may have delivered himself of the quote (Dr. Berman) attributed to him in your editorial on page 1003 of MINNESOTA MEDICINE but you really shouldn't have attributed it to him. It was first published about 160 B.C. in the Heautontimoroumenon of Terence, and he really deserves the credit, which is considerable, for it.

Harry L. Arnold, Jr.
Straub Clinic
Honolulu, Hawaii

Editors Comments:

Dr. Arnold's letter was submitted to Dr. Berman whose reply follows:

The text in question appeared as an epigraph under the title "Antivivisectionists" in the October Issue: "Homo sum: Humani nihil a me alienum puto."

"I am a man: I hold nothing human foreign to me" is indeed of Terentian origin. Dr. Arnold calls attention to Terence's two thousand years' priority. Being myself more of a Lewis Carroll fan than a Latin scholar, I quoted from Carroll: "Some popular fallacies about vivisection" (I should say, from C. L. Dodgson, since this was not a pseudonymous essay.) I should apologize to Dodgson, since he used the Latin text to bolster his argument against animal experimentation. It seems to me it is a better ornament of a prohuman stand.

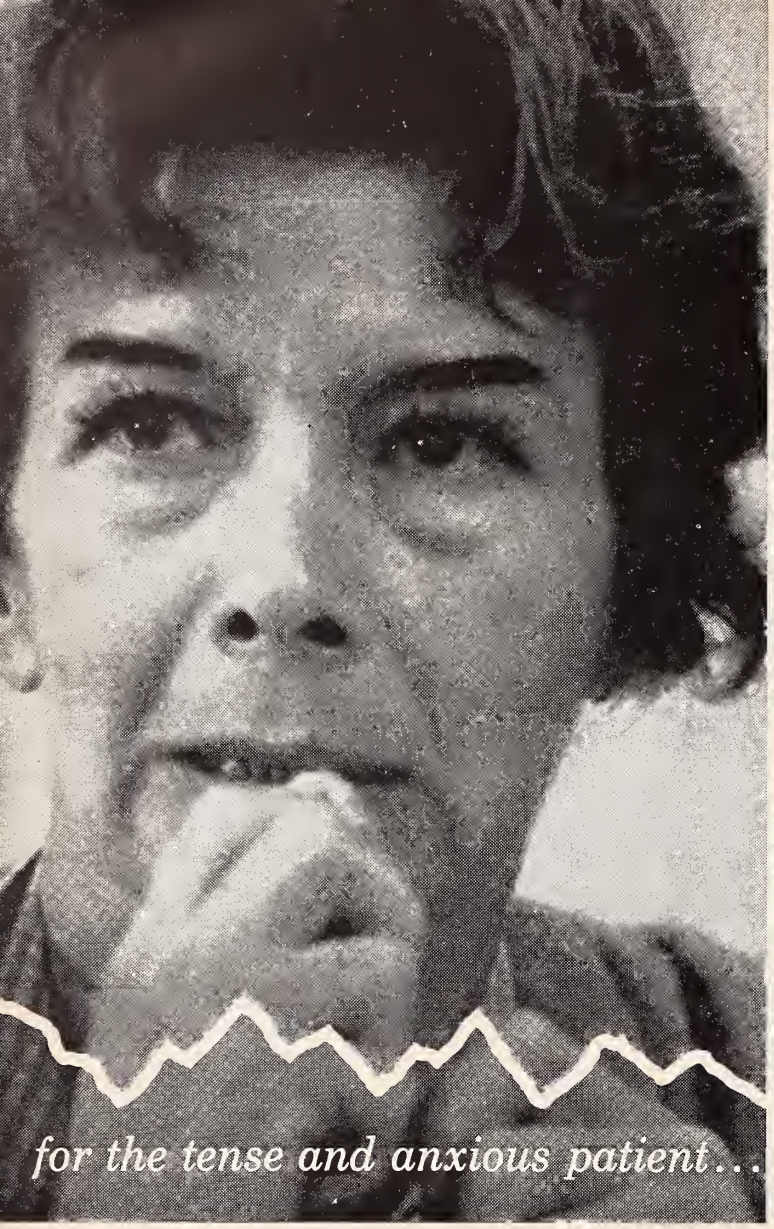
I admit the error and congratulate Dr. Arnold for his erudition in spotting it. Not one of MINNESOTA MEDICINE'S *five thousand other readers noted it. At any rate no one else mentioned it. The editor should be pleased to know that this journal is read throughout the land even in the farthest corners thereof.*

Reuben Berman, M.D.

They only earn their freedom and existence who daily conquer them anew. — Goethe

---

The Difficult is that which can be done immediately; the Impossible that which takes a little longer. — George Santayana





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Program

Friday, October 25

Chairman: Roy G. Holly

9:00 a.m. Maternal Deaths in Minnesota Due to Heart Disease ..Donald W. Freeman*
Marriage Therapy.....Irving C. Bernstein
Maternal Mortality Resulting from Acute Fatty Metamorphosis of the Liver.....Ernest W. Lowe
Vaginal Hysterectomy in Young Women — Psychological Adjustment.....M. G. Tompkins
Placental Transfer of Insulin.....William N. Spellacy, Frederick C. Goetz
Obesity and Adenocarcinoma of the Endometrium.....Konald A. Prem, N. M. Mensheha
Endometrial Adenocarcinoma.....Charles E. McLennan

11:45 a.m. *University of Minnesota Hospitals Staff Meeting and Luncheon:*
The Relation of Irradiation Treatment Leucopenia on Survival and Recurrence of Squamous Cell Carcinoma of the Cervix....Fred A. Lyon, Edgar L. Makowski

Chairman: Charles E. McLennan

1:00 p.m. Maternal Deaths in Minnesota Due to Trophoblastic Tumors.....Melvin P. Baken, Jr.*
Interpersonal Distance.....Titus P. Belleville
Pathogenesis of Pyosalpinx.....G. T. M. Cummins
Experiences with Local Anesthesia in the Private Practice of Obstetrics and Gynecology.....Mike Fite
Tubal Implantation.....Rodney F. Sturley, James J. Swendson
The Correlation of Hysterosalpingography with Subsequent Culdoscopy in the Infertile Couple.....James R. Bergquist
A Novel Integrated System for Determination of Neutral 17-Ketosteroids in Urine.....William D. Cohen
Information Retrieval in Obstetrics and Gynecology.....Roy G. Holly

Saturday, October 26

Chairman: Curtis J. Lund

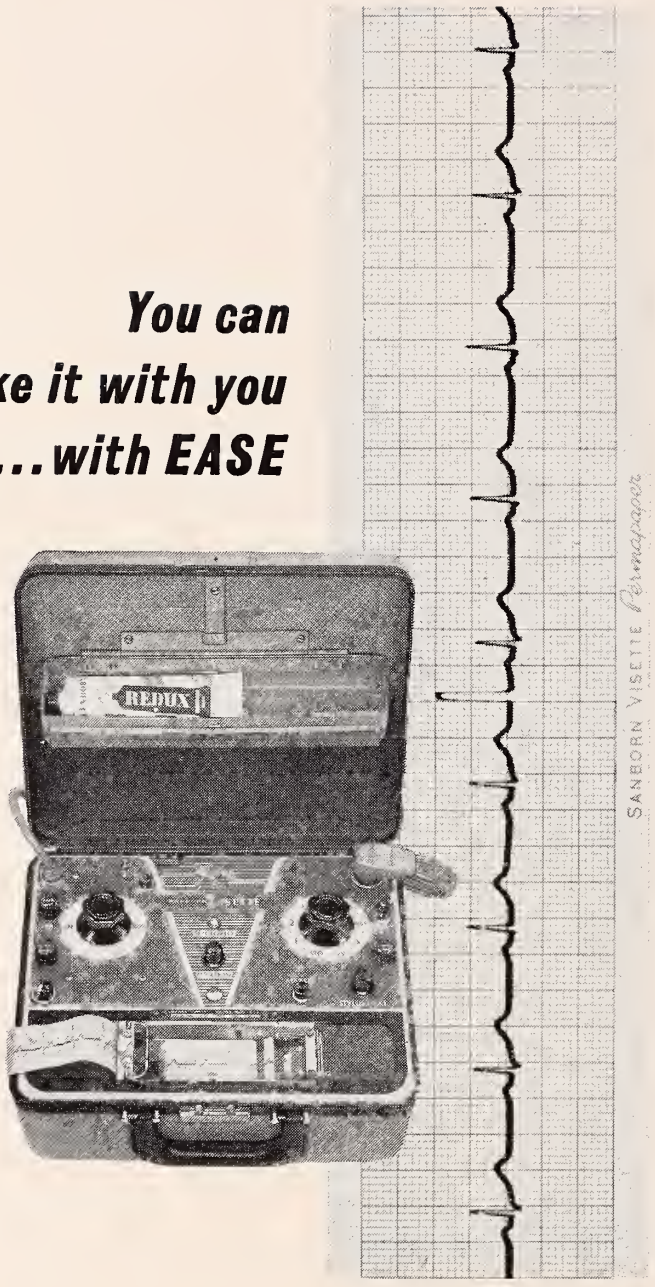
8:30 a.m. Enzymic Steroid Interconversions in a Granulosa Cell Tumor.....Irwin H. Kaiser, Melvin J. Bryson, Max L. Sweat
Further Experiences with a Fetal Incubator.....Robert C. Goodlin
Surface Tension of the Respiratory Tract Fluid in Fetal Guinea Pigs.....Thomas H. Kirschbaum, Gőran E. Enhőrning
Maternal Deaths in Minnesota Due to Infection.....Alex Barno*
Evaluation of Non-Narcotic Analgesic Agent in Obstetrics.....Mancel T. Mitchell
Cineurography — Urethral Diverticulum (motion picture)...Curtis J. Lund

The Minneapolis Club

6:30 p.m. *Social Hour and Banquet:*
Biographic comments.....Charles H. Peckham
"Dr. McKelvey — This Is Your Life".....Alex Barno
Presentation of plaque to Dr. McKelvey on behalf of the Minnesota Obstetrical and Gynecological Society

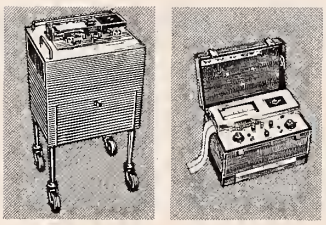
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Curbstone Consultation

Pap Smear

QUESTION: A patient has a suspicious Pap smear. A small friable raised lesion is visible on the posterior cervical lip. Should a conization be done or is a cervical biopsy sufficient for diagnosis? *M.D., Mpls.*

ANSWER: A cervical biopsy of this lesion performed in the office is usually sufficient to establish the diagnosis in this situation if the lesion is malignant. The conization is a greater procedure and should be reserved for the cervix on which no lesion is visible or when adequate biopsies are inconclusive as to the exact diagnosis or invasiveness of the cancer.

Toxoplasmosis

QUESTION: A family house-cat was found to have toxoplasmosis. All members of the family are without signs or symptoms of the disease and have a negative history. The dye test and complement fixation tests are negative for all family members except the mother who is six months pregnant. She has a dye test positive in serum dilution of 1:16. Complement fixation tests with PE antigen and CAM antigen are negative. Are this patient and the pregnancy considered infected? *M.D., Sioux Falls, South Dakota*

ANSWER: The dye test titer of this patient is usually considered insignificant unless complement fixation tests are positive. It is possible that this titer may be on the way up as it would be early in the course of the disease. The serum titer should be retested in one month. If there is no significant increase in titer at that time there is no active disease. Toxoplasmosis can be transmitted to the fetus only if the disease is active in the mother.

It is because we know life and do not know death that we love the one and dread the other. — Chinese Buddist Scripture

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Fracture Conference

Post Irradiation Fracture

Carcinoma of the cervix has been treated by irradiation from external sources and by radium insertion independently or combined since 1902. Baensch in 1927[1] reported the first pathological fracture of the femoral neck following irradiation. The problem has been the subject of numerous reports and is well recognized.

Case Report

M. H. was a 48-year-old white parous female who was admitted to the University Hospitals with a presenting complaint of vaginal bleeding. A diagnosis of squamous cell carcinoma classified as League of Nations Stage II was made on the basis of a biopsy and palpable right parametrial extension of the tumor.

Therapy consisting of 3000 tissue roentgens of external deep X ray was delivered in 25 treatments to the mid-pelvis by a 400 KV machine over a 32-day period. The therapy was administered through one anterior, two posterior oblique and two lateral fields. External therapy was followed by 4000 milligram hours of radium distributed to the uterus and upper vagina by means of two 10 mg. containers of radium in tandem placed in the cervix and uterine cavity and by 20 mg. in a contracervical container for 100 hours.



Fig. 1 — AP of pelvis on July 12, 1957, showing no evidence of bony change.

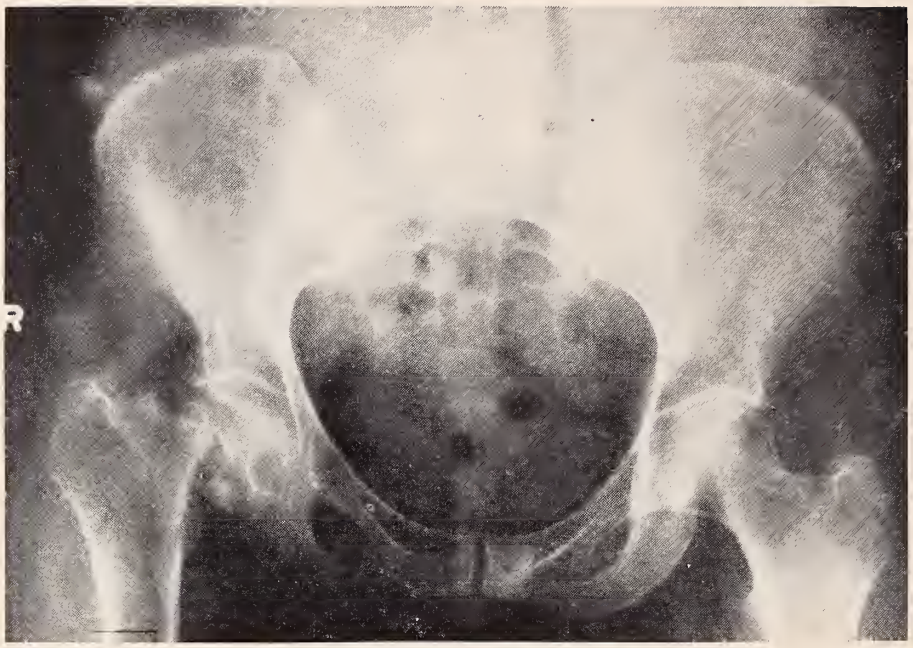


Fig. 2 — AP of pelvis on June 11, 1958, demonstrating transverse fracture of neck of femur on right. Note lack of evidence of bone necrosis and bone reaction.

Six months after the completion of therapy, the patient had a gradual onset of pain in the right hip which was described as a dull aching sensation. The pain was continuous but aggravated by activity and relieved somewhat by rest. The pain did not interfere with sleep. The patient noted stiffness in the morning which was relieved by mid-day. An X ray taken at this time showed no evidence of bone destruction.

In the next six months, the patient had recurrent episodes of similar pain which on occasion prevented her from performing the normal activities on the farm. These episodes were dispersed with periods when no symptoms were present.

Twelve months following completion of radiation therapy, the patient experienced sudden onset of sharp pain in the right lower extremity. The main complaints were about the knee. She was unable to bear weight without crutch support.

She did not seek medical advice for seven months at which time X rays on the pelvis revealed a fracture of the neck of the right femur with inferior and posterior displacement of the head. There was no evidence of healing and no evidence of avascular necrosis. X rays of the lower lumbar spine showed some demineralization and moderate hypertrophic degenerative change. Pelvic examination found no evidence of recurrent tumor.

The patient was admitted to the hospital and following traction for one week was taken to surgery and head of the femur was excised. A Schmidt endoprosthesis was inserted. The patient followed an uneventful postoperative course and was discharged from the hospital ambulatory on crutches one month later.

The pathological report of examination of the excised head reported moderately dilated vessels, fibrous tissue in the marrow spaces, no evidence of avascular necrosis, and presence of osteoblastic activity.



Fig. 3 — AP of right hip with Schmidt prosthesis in place on December 4, 1961, three years and five months from surgery. — Film reversed.

The patient continued to do well and was able to discard the crutches and walk without a limp and without pain. Recent contact with the patient five years from prosthetic replacement and seven years postirradiation revealed the patient was well and was farming a 40-acre farm with her daughter. She carried out all activities on the farm without pain.

Comment

Post irradiation fractures of the neck of the femur occur in 1 to 2 per cent of the patients treated for carcinoma of the cervix. In one-fourth to one-third of the cases, fractures are bilateral. Virtually all fractures occur among patients treated with orthovoltage in which the energy absorption of bone is approximately twice that of soft tissue.[2] With supervoltage equipment, e.g. cobalt, this complication is extremely rare because the radiation energy absorption by bone is about the same as soft tissue.[2] At the University Hospitals there have been no pathological fractures of the neck in patients treated by cobalt. Bickel was unable to correlate the use of lateral fields with the development of fractures.[3]

Clinically, the diagnosis is established by history and X-ray findings. Symptoms of pain usually precede the fracture by several months. Onset of symptoms varies from several months to twelve years after completion of therapy. The fracture is productive of sudden pain and may be incident to minimal or no trauma. Usual signs of hip fracture with pain on movement, shortening of the leg, and external rotation are present.

X rays reveal the fracture. There may or may not be evidence of local demineralization or sclerosis. Bone changes when present should not be confused with metastasis since metastasis to this region from carcinoma of the cervix is extremely rare.

Pathological examination of tissues removed in these fractures shows that bone necrosis is not present. There is dilatation of the vessels, extensive marrow fibrosis and edema. New bone trabeculae are somewhat disorganized and thinner than normal.[4,5,6] Goodman and Sherman[6] state these changes are not too unusual in this age group and postulate that the changes permitting pathological fracture in bone following radiation is due to a change in metabolism which is not reflected in the physical structure as viewed in the light microscope.

Contrary to popular medical opinion avascular necrosis is extremely rare in these cases and since the vascular supply is sufficient to maintain osteoblastic activity one should expect irradiation fractures to heal readily.

Treatment is, therefore, instituted according to the same principles one would apply in fresh fractures of the neck of the femur. Nonweight bearing on crutches, closed reduction with pin fixation, bone grafting, and prosthetic replacement all may be utilized as indicated by the situation presented with good results expected.

Konald Prem, M.D.
Paul M. Arnesen, M.D.

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6. Sherman, M. S. and Goodman, A. H.: Postirradiation Fractures of the Femoral Neck. J Bone Joint Surg 45-A:723, 1963.

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Clinical Path Conference

A Sequel to Hernia Operation

Resident:

The case to be presented is that of a 22-year-old girl who was admitted to Swedish Hospital for the third time on June 12, 1962. Her main complaint was pain in the left lower quadrant which began suddenly the morning of admission. Prior to the present she had enjoyed good health. There was no apparent relationship of the pain complaint to the patient's bowel or bladder habit or function. She had no vaginal discharge or bleeding. The patient had never menstruated. On examination she appeared to be in acute distress with the pain in the left lower quadrant. Her temperature was 98.8°F., pulse 78, respirations 20 and blood pressure 118/80. On physical examination the breasts appeared to be somewhat underdeveloped. There was marked tenderness in the left lower quadrant with guarding but no rebound tenderness. In this area a vague mass could be palpated. By rectal examination an acutely tender, firm mass the size of a large grapefruit could be outlined in the left pelvis. A vaginal examination was not done at this time. The admission hemoglobin was 13.2 grams percent and the WBC 6,100. There was an essentially normal differential distribution of leucocytes. A routine urinalysis was within normal limits.

It was believed that the patient had an acute intra-abdominal process and preparations were made for laparotomy and removal of the mass.

Review of the patient's past hospital records showed that she was admitted for repair of a recurrent left inguinal hernia at the age of 12 years. During the repair a small mass was found in the hernial sac. It was replaced into the peritoneal cavity and the remainder of the repair was routine. The mass was presumed to be an ovary although a biopsy was not taken. In September of 1957 when 17 years of age, she was readmitted to the hospital for study of her complaint of primary amenorrhea. The breasts and external genitalia were underdeveloped. The hair of the mons pubis and labia majora was sparse. The CBC and a protein-bound iodine were normal. The total 17-ketosteroid urinary excretion was 19.3 mgm. for 24 hours. (Normal for this laboratory for a female of

this age is 6-15 mgm.). A glucose tolerance test, serology, excretory urogram and chest xray were normal. The patient was subjected to an examination under anesthesia. The consulting gynecologist described a blind vagina with a second blind tube arising on the right just inside the hymen. The septum between the tubes was removed and a more adequate examination was possible. The cervix could not be found although two small cords of tissue were palpated extending laterally from the apices to the pelvic walls. At no time did the patient have a spontaneous or induced bout of vaginal bleeding despite several courses of estrogen and progesterone.

In the light of the patient's acute problem and her prolonged history, are there diagnoses that you would like to consider before subjecting the patient to surgery?

Dr. Janda:

Ordinarily, we are given fairly good clues as to the etiology of the problem presented, but in this instance I'm not so sure. In view of the lack of any inflammatory reaction in this young person, it would seem reasonable to exclude the ordinary infectious processes that might account for the pelvic mass and acute pain. An infarction of the described pelvic mass is the probable cause for the pain. Quite likely the mass will have a pedicle that has twisted. From the information presented it would seem that an immediate laparotomy and removal of the mass is indicated, but the rest of the problem is not clear.

The patient has primary amenorrhea. Vaginal bleeding could not be produced with repeated administration of estrogen and progesterone. A competent examination of the genitalia ruled out such obstructions as the so-called imperforate hymen. The double vaginal tube may be of very special significance under these circumstances. The gynecologist was unable to visualize a cervix — this I believe is very significant. Was a buccal smear obtained for a nuclear sex chromatin count?

Moderator:

After the surgery, one was taken and found to be negative. This finding is commonly referred to as the male sex chromatin pattern.

Dr. Janda:

With this information it is now apparent that the patient falls into the group of intersex problems. Conceivably, the patient could have had a simple congenital absence of the uterus, but the accurate examination and male chromatin pattern eliminate that as a possibility. I believe that this patient has a testicular feminization syndrome. There are, however, some disturbing unexplained features. I have never seen a report of a double vagina associated with this syndrome. According to the theory of Robert Meyer, during embryological development the vagina is organized under the influence of the Mullerian tubes where they join the fetal urogenital sinus. It is difficult enough to comprehend the formation of the vagina in the testicular feminization syndrome when the Mullerian apparatus does not join the urogenital sinus. Because of the double vagina, the diagnosis must be held in suspect. Furthermore an elevation of the

urinary 17-ketosteroids is not ordinarily found in this syndrome. For an undetermined reason the testicles produce relatively normal feminine urinary levels of estrogen while the urinary 17-ketosteroids remain within normal levels. In general patients with this syndrome have a most acceptable feminine habitus. I well remember the first patient with this syndrome that I ever saw. She was a professional stripper who worked in one of the local burlesque palaces. It was only after a pledge of secrecy from us that she allowed complete studies. She believed that it would be bad for her professionally if the true situation became known to her clients. What were the operative findings and was a uterus found?

If this is the testicular feminization syndrome, the gonad involved is a testicle.

Moderator:

A solid 15 cm. lesion having a long pedicle attachment was found and removed from the left side of the pelvis. After removal, no other genital structures could be recognized. The uterus was absent. Dr. Reynolds, what is the histology of the tumor?

Dr. Reynolds:

The mass weighed 430 gm. and measured 15 x 10 x 7½ cm. The tumor mass seemed to be completely encapsulated. It had a pedicle attachment 4 cm. in length. On microscopic examination the majority of the tissue was compatible with a dysgerminoma or seminoma. In the base of the pedicle there were localized collections of tubules resembling the immature testicle. The histologic sections were sent to a number of pathologists for consultation. The collected opinions together with the later finding of a negative nuclear chromatin pattern of the buccal smear suggested that this lesion be classified as a seminoma. It was considered malignant.

Moderator:

The patient was treated with external radiation using radioactive cobalt. A total of 3,000 tissue roentgens was delivered diffusely to the pelvis and lower abdomen. The patient's course to our last report was normal with no suggestion of recurrent tumor. Are there any further comments that you would like to make, Dr. Janda?

Dr. Janda:

Yes, this patient's problem illustrates the value of a routine complete examination as the first step in the evaluation of any case of amenorrhea. In the majority of the instances of primary amenorrhea, a very good differential can be established by a simple pelvic examination. The surgeon should be aware of this rather rare condition. When a gonad is found prolapsed into the peritoneal sac of a inguinal hernia in a little girl, a biopsy should be taken before replacing it in the peritoneal cavity. If the mass is detected preoperatively, a buccal smear for the nuclear chromatin count must be done. Finally, because of the high incidence of malignant degeneration, it is recommended that the testicle be removed. It should be remembered that with removal of the gonads in this syn-

drome, the patient's estrogen level will fall and she will experience menopausal symptoms. Estrogen replacement in the younger group should be instituted.

Moderator:

We withheld a salient feature of this case that probably would have made the diagnosis too easy. Remember her operation at the age of 12 was for a recurrent hernia? This little girl had been operated on at the age of 1½ years for bilateral inguinal hernias. Some tissue was removed from the right side. The mother says testicular tissue was found, but the hospital records were not available to us for verification. No familial history of this problem is known to the mother.

George W. Janda, M.D.
Minneapolis, Minn.

ANCIENT PRACTICES

Contraceptive

Early works of Costa cited by Thorndike in his "History of Magic and Experimental Science" indicate "that a woman who spits thrice in a frog's mouth will not conceive for a year."

This startling directive Costa attributes to earlier medical authorities and adds that he himself has not verified its efficacy but would not deny it, either, since nature has her own inscrutable ways of doing things.

Difficult Labor

"In difficult labor the medicine-man of the tribe, or his successor at later periods, the priest, might be called in; the latter, perhaps, would hastily mumble a few verses of some book . . . spit in the patient's face, and leave the rest to nature." — Howard Haggard in "Devils, Drugs and Doctors"

Such spitting was done neither in levity nor with scorn, but solemnly — in the belief that saliva was highly potent both intrinsically and symbolically.

It is the practice in all cases where medicine is employed, to spit three times on the ground, the object being to aid the operation of the remedy employed."

— Pliny's "Natural History" Vol. 5.

When a woman tells you her age, it's all right to look surprised, but don't scowl. — Wilson Mizner

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God's mill grinds slow but sure. — George Herbert — 1593-1632

The Doctor on Call

Much as we appreciate and admire the splendid industrial health work accomplished by some enthusiastic and unselfish physicians while serving as "Doctors on Call" for industry, it seems that the time has come when we should seriously evaluate and challenge the benefits of this method of practicing industrial medicine. This is one of the greatest hindrances to the development of good industrial medical practices.

Let us distinguish between a part-time physician serving industry and a doctor on call. The former receives payment for designated time or services rendered under the terms of some kind of written or verbal agreement, while the doctor on call receives no retainer fee and has no stated obligation to the company. In addition to having no defined responsibility, he must find his remuneration through direct consultant fees or through fees which may compensate him only indirectly. In this discussion, "Doctor on Call" refers to the private physician who is engaged in a private practice, which is not restricted to industrial medicine, and who has no special training or experience which qualifies him as a consultant in industrial medicine, but who may be named by a company as the doctor to call in an emergency. Often he falls into this role because he is the private physician of a plant official or is located near the plant.

The part-time physician, if he is truly interested in industrial medicine, can do almost as fine a job for an industry as a full-time physician. The doctor on call can do practically nothing except to care for the casualties after the accidents have happened.

The doctor on call may be considered a second choice for the very small industry, too small to have a nurse. A first choice would probably be some kind of co-operative arrangement among small plants which would permit the small industry to have the benefit of a part-time physician and a part-time or full-time nurse. The small and isolated plant which has to depend upon its own limited first-aid facilities, has little choice and must rely largely on the doctor on call.

The doctor on call is essentially a physician in private practice who is first of all interested in maintaining a large enough private practice to give him a satisfying life and an adequate income. He looks upon cases referred to him by an industry as legitimate and desirable additions to his practice. His interest is primarily in the individuals as private patients and not in the factory where they are employed. Ordinarily, he is not particularly interested in getting workmen back to work in a hurry and, like any other private practitioner, he is more vulnerable than the part-time physician to the accusation that compensation cases are unduly prolonged.

The doctor on call, because of his lack of responsibility, appears not to be interested in instituting or supporting measures within the factory which might reduce accidents and occupational diseases. An outside observer might suspect that such inactivity is based on the fact that the doctor stands to gain personally if accidents and occupational diseases continue at a high rate. The doctor on call should not be too severely criticized for such an apparent attitude because he is only following the traditional practice of medicine. For years, the private practice of medicine has emphasized the treatment of disease.

A doctor on call rarely visits the factory which he serves or makes plant tours; these use up valuable time which does not pay him anything. Furthermore, he commonly is reluctant to visit a place of work where he generally has no more right than any private citizen. Also, such uninvited visits might be interpreted by his fellow practitioners as an attempt to ingratiate himself and increase his private practice.

The industrialist on his part, drifts very easily into adopting the "Doctor on Call" pattern be-

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While the views expressed herein represent the opinions of the author this has nevertheless been reviewed and approved by the Committee on Industrial Health of the Hennepin County Medical Society and its publication in The Bulletin authorized.



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cause he is usually thinking only of the immediate cost. He is likely to think that a doctor is useful only when there is a patient to treat. He may think that a physician's services are expensive and that he can keep down expenses by limiting the calls. The industrialist, too, is usually uninformed of the value of industrial medicine. He may be totally unaware of the preventive aspects and may think only in terms of treatment.

Some industrialists hire a full-time nurse but do not hire a part-time physician to direct and support her work. They have the mistaken idea that a doctor on call is all that is needed. The doctor on call may be asked to sign standing orders authorizing the nurse to follow certain procedures in her work, ostensibly under his direction, when in reality she is not under his direction at all and he has no responsibility for her professional behavior. Frequently, such standing orders are used year after year without revision and the doctor on call, who signed them, has no means of recalling them. There is some tendency in some companies to push a nurse into activities which border on the practice of medicine. The doctor on call, in such cases, is powerless to cope with the situation because he is the victim of circumstances rather than the guiding hand.

A doctor on call may be asked by the nurse or the company for favors or opinions which take up his time, but for which he receives no direct pay. In order to compensate him for such favors, the nurse or company may feel obligated to direct patients in his direction. Such tendencies, inherent in the "Doctor on Call" system, may lead to accusations of unethical practices which reflect unfavorably on the character of industrial medicine as a whole.

The doctor on call is usually not consulted when the position of the nurse in the factory organization is established, and she and the whole health service may be so subordinated that good industrial practices haven't a chance to develop.

The doctor on call does not make regular factory tours and does not enter into the doctor-management relationships which are so vital a part of good industrial medicine. He has no influence on plant policies. He usually has no part in the introduction of health protection and accident prevention measures adopted by the company. He can have no influence in the important field of industrial relations. He is usually given no part in absentee control or health counseling, which are so valuable to the personnel department. He is not expected to conduct a health education program in the industry. In these and many other ways, he is the company doctor in name only, and he does little either to improve the interests of the company he serves, or to promote a progressive concept of industrial medicine.

The way to avoid this drawback to the development of sound industrial medical practice is simple, sensible, and practical for both the medical profession and industry. If every factory large enough to employ a nurse would hire at the same time a part-time or full-time physician to work with her and supervise her work and give him a retainer fee sufficient to compensate him for assuming his legitimate responsibilities, it would go far to solve the problem of poor industrial medical practices which are blamed on the "Doctor on Call" system.

Salaried medical practice is an accepted thing in industrial medicine, and it goes a long way to carry industrial medicine into the plant which is considered by authorities as vital to the success of industrial medicine. Hiring a doctor for a stipulated number of hours a day, of course, is no sure road to a good industrial medical service. Under these circumstances a doctor can shirk his duties and ignore his responsibilities just as well as anywhere else, if he is that kind of man, but at least he will have the opportunity to make good, which is largely denied the doctor on call.

W. E. Park, M.D.
Committee on Occupational Health
Minnesota Medical Association

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A Modern Concept of Obesity*

"E. H. Rynearson has insisted that the only glands which play a role in the development of obesity are the salivary glands."

Obesity is defined as an increase in body weight beyond the limitation of skeletal and physical requirement, as the result of an excessive accumulation of fat in the body. Also as an increase of more than 10 percent of the standard tables for height, age, and body type build.

Relationship Between Obesity and Overeating

Obesity and overeating can be traced to necessity, health, status symbol, and habit.

Necessity

In the days of the cave dwellers, people would gorge themselves when food was available because they never knew just when they might eat again. The leader of a tribe of cave dwellers was the strongest man and the best hunter, and of course had first opportunity to eat at any meal, at which he consumed as much as he could.

Status Symbol

Later, in medieval times, obesity was a sign of wealth, because the poor could not afford to eat. Even in mid-Victorian times, when tuberculosis was rife, overeating and opulence were signs of health and wealth as contrasted to the asthenia of the tuberculous. More recently, when many of our grandparents and great grandparents did not have enough to eat in Europe, they emigrated to North America and immediately began stuffing themselves and their children, a practice which has continued to this day. At first this was a mixture of necessity and pride, but now it has become a habit. In our time, food is made more and more appealing; we are exhorted to eat all kinds of unnecessary delicacies at and between meals; and if any person has the strength of will to refuse these exhortations of supermarkets, newspapers and magazines, billboards, friends, wives, husbands, and parents, he or she is looked upon as an eccentric or deviate — or else must be ill.

Obesity as a Symptom

Obesity is not a disease; it is a symptom; and anyone making a diagnosis of obesity is simply stating that he does not know what disorder is present. Obesity presents in the same manner as headache, running nose, and dizziness present — as symptoms which may or may not be associated with disease.

Continued

*Medical Grand Rounds, Mt. Sinai Hospital, April, 1963.

The Importance of Obesity in Medicine

In itself — obesity can be divided into psychiatric, metabolic, hereditary or enviromental. It is commonly associated with predisposition to diabetes, cardiovascular disease, and respiratory problems.

Malnutrition is a word that has long been associated with undernutrition; but its meaning is actually "disordered nutrition." In this way we can divide malnutrition into two classifications: (A) Undernutrition, an example of which would be the Kwashiorkor of severe protein deficiency, and (B) Overnutrition.

Overnutrition

Environmental

In these cases there is usually an obese mother and father, or brothers and sisters, and the child sees them continually overeating. In an environmental situation of this nature the child also will usually begin to overeat and become obese.

Psychogenic

In this category obesity may be Psychosomatic or Psychoneurotic.

Obesity is primarily a result of chronic overeating, and in most instances overeating is a symptom which is directly related to the emotions. Almost every obese person, if he will be honest with himself, will admit that he often overeats when he feels tense, nervous, unhappy, insecure, lonely or frustrated. And conversely if he is happy, relaxed and secure, he has less urge to overeat.

In this way, the hypothesis is advanced that obesity is a depressive equivalent, that is, it is believed that certain individuals ward off and allay depressive feelings by increasing the amount and frequency of their food consumption. In a recent edition of a standard text book on Preventive Medicine it is stated: "As more is learned about the evolution of obesity, it becomes increasingly clear that the motivation of personal insecurity and emotional instability are prime factors conditioning continued consumption of food in excess of need."

Many consider obesity to be solely a symptom of emotional instability. Hamburger groups his cases into four classes of overeating:

1) a response to nonspecific emotional tensions.
2) a substitute gratification in intolerable life situations.
3) a symptom of underlying illness, especially depression and hysteria.
4) an addiction to food.

All of these can properly be termed "compulsive" eating. In these situations, hyperphagia serves largely a defensive, compensatory, and substitutive function. Like other mechanisms of defense, it provides for the patient both a primary and secondary gain in dealing with his personal conflict. Overindulgence in food compensates and substitutes in significant measure for the disagreeable effects generated by intrapsychic conflicts. It may be used as a defensive agent in rejection of undesirable persons or situations, for example, to reject the sexual advances of an unloved spouse or to avoid physical exertion. In a positive manner, children may find their obesity useful in gaining the attention of solicitous parents.

Personality Disorders

In addition to hyperphagia, other manifestations of personality disorders are often encountered in the obese patient, including drunkenness, drug addic-

tion, petty thievery, and suicidal tendencies. Another personality factor which has been noted in the obese is the relative absence of overt depression. This is the Falstaff type of individual who enjoys all the pleasures of life, including eating. Such patients are the congenial, jolly, fat individuals, although psychoanalysis may reveal an entirely opposite picture.

Cultural and Medical Condemnation

The psychological consequences of obesity are such that they induce a vicious cycle. There is cultural and medical condemnation. Stout people bear the brunt of jokes, ridicule and humiliation. The often quoted saying that everyone likes a fat man but no one loves one is felt acutely by many of the obese. Overweight individuals experience social ostracism and discrimination in seeking competitive jobs. They may therefore develop hostile attitudes which only increase the necessity to eat, and which are aggravated by the repeated reproaches and admonitions of family, peers, and physicians.

Socioeconomic Factor

Aside from the relationship of obesity to mental disturbance, there are varying amounts of environmental, metabolic, hereditary and psychiatric problems. The prevalence of obesity was seven times higher among women in the lowest social class as compared with those reared in the highest in the survey. Some 30 percent of the women in the lowest socioeconomic category were obese, with this percentage tending to decrease with increasing socioeconomic status until, in the highest category, only four percent were obese. For men the same tendency existed although to a lesser extent.

Age Factor

There is also an age relationship in obesity. Women show a low percentage in the younger age group; only five percent of the 20 to 24 year old group are obese. The percentage rises sharply after age 40 and reaches a peak of 34 percent at age 50 to 54, dropping to 26 percent in the oldest category. For men a positive relationship between age and obesity is also apparent, although it is less pronounced and the peak occurs somewhat earlier.

This survey is of interest because it points to the fact that whatever the genetic and biochemical determinants of obesity may be, it is susceptible to an extraordinary degree to control by social factors alone, and that an attack on the problem need not await further understanding of the physiological determinants of obesity. With regard to age, the similarity in findings from differing samples and groups supports the theory that increase in body weight with increasing years is a biological characteristic of man, as it is of so many animals.

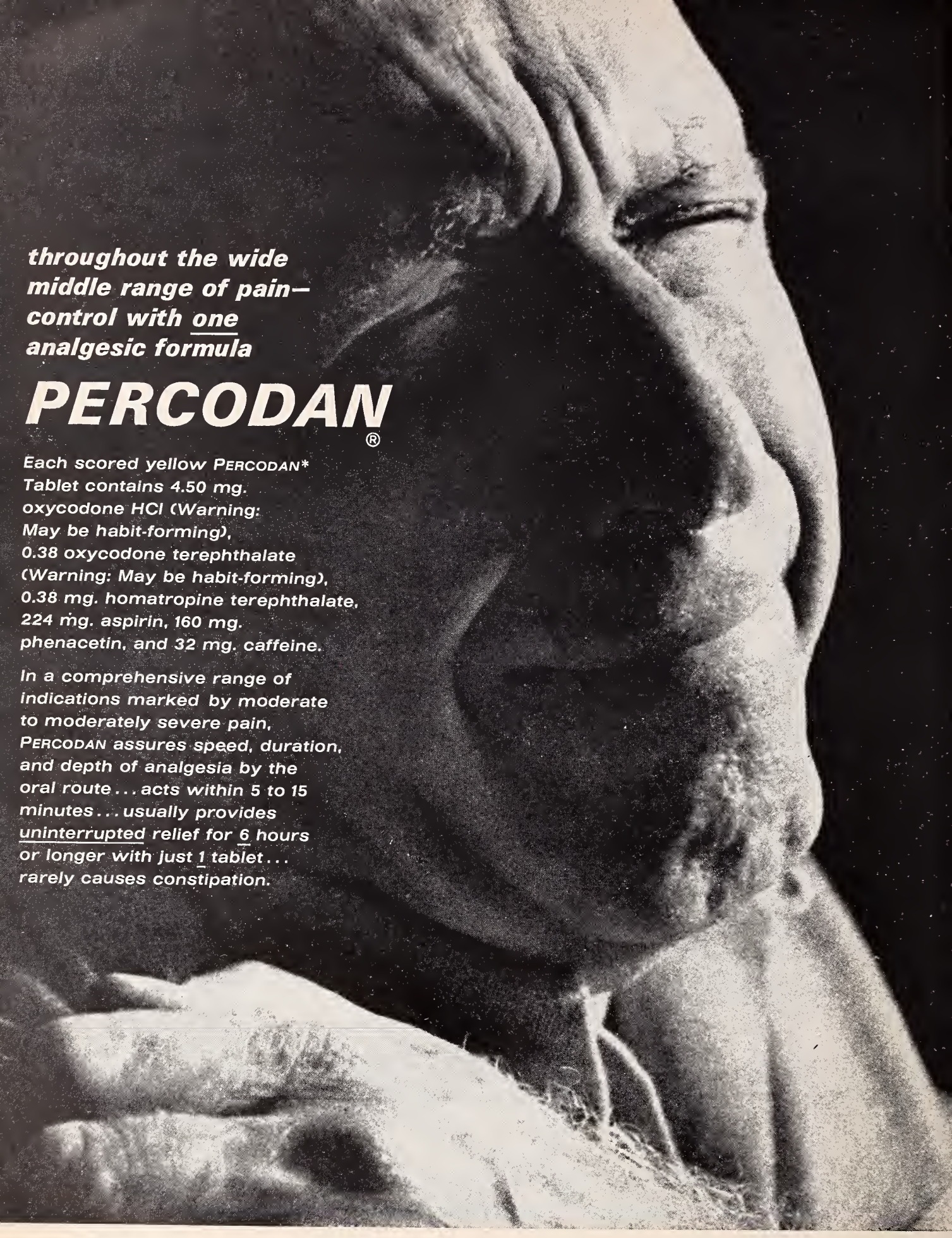
Heredity

As an example of the effect of heredity on obesity, the case may be cited where ten pairs of twins were placed in different foster homes. Although the social and economic factors and body builds of the new "parents" varied widely, those twins whose real parents had been obese also became obese in most instances, although no pair of twins were placed in the same foster home.

Etiology and Pathogenesis of Obesity

Although for many years we have been in the habit of discussing "endocrine" obesity, such as Cushing's disease and "metabolic" obesity, with the

Continued



throughout the wide middle range of pain— control with one analgesic formula

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theory that some persons extract less energy from food and consequently must increase their intake, many authorities believe that there are no such entities as "endocrine" or "metabolic" obesity. They consider it impractical to distinguish between exogenous and endogenous obesity: that all obesity is exogenous.

Intake vs Output of Energy

A generalized increase of body fat occurs when the intake of food is greater than the output of energy in the form of heat, maintenance, growth, and work. The excess of ingested food is stored as fat because the body cannot excrete it. (The areas in which the body fat is deposited may be due to derangements of endocrine glands). This is the only way in which obesity can develop. As long as a person becomes fat or remains fat on a given diet, he is eating more than he needs. The law of the conservation of energy is the basis of any discussion of obesity (and of rational therapy). Energy which is taken into the body is either used or stored, and this is true both for patients with hypothalamic disorders as well as for people who habitually overeat.

Total Caloric Requirements

The basal metabolic rate, as determined by the surface area, is normal in obesity. Nor are there abnormalities in the caloric requirements of muscular activity in obese persons, and the efficiency is normal. The total caloric requirement for a given effort is of course increased as a result of the increase in body weight. A diminution of the specific dynamic action of food was at one time thought to be a cause of obesity, especially of "pituitary" obesity, but it has been shown that the increase of metabolism after the ingestion of protein is the same in normal and in obese persons.

A substance has been demonstrated in the urine of individuals actively mobilizing and utilizing body fat, that when injected into mice subcutaneously produces a depletion of the animals' fat stores. This same substance appears in human urine during fasting of both normal and obese persons, and also on hypocaloric diets.

Appetite — Hunger — Satiety

Hunger (appetite is synonymous) is believed to be controlled by the ventromedian or adjacent nuclei in the hypothalamus: the region known as the hunger or satiety center. Many factors have been implicated in the regulation of this center, such as the skin temperature and the Glucostatic Theory of Appetite Regulation. In the normal individual the skin temperature rises higher after a high calorie meal than it does in the obese individual. Actually, the heat formed as a result of specific dynamic action is retained at first in the subcutaneous fat of an obese individual and is less easily dissipated than in the normal.

Blood Glucose

The level of blood glucose is especially important, as shown by the fact that an intravenous infusion of glucose can stop hunger contractions of the stomach.

Specific Appetite

The stomach itself is not necessary for the mechanism of hunger and satiety, for gastrectomized patients feel hungry and maintain their body weight, and satiety follows jejunal tube feeding. In addition, there appears to be a

Continued

mechanism of partial satiety with certain foodstuffs and a total satiety with others. In simpler terms this would mean that there is a specific appetite for almost every separate food.

Obesity and the Central Nervous System

Hypothalamic Obesity

The relationship between obesity and the central nervous system is seen in hypothalamic obesity. This can occur as a result of low grade inflammation of the region as shown by mononuclear inflammatory cells and nonacute perivascular infiltration. Tumors of the floor of the third ventricle produce obesity even when the pituitary is not involved. Cortical lesions, frontal lobotomy, and experimental lesions of the midbrain have all been shown to produce obesity.

Hydrocephalus

Symptomatic cerebral obesity may occur in cases of internal hydrocephalus, especially if associated with small tumors of the fourth ventricle. It is likely that the increased pressure in these cases causes flattening of the floor of the third ventricle, producing lesions which cause the increased appetite. Cerebral obesity is, in this way, identical with hypothalamic obesity. The obesity seen in Lawrence-Moon-Biedl syndrome is generally considered cerebral in origin, but is probably hypothalamic.

"Endocrine" Obesity

It has been shown that the endocrine organs are not at fault in these cases, but are *concerned with the distribution of fat.* As a sequel of certain endocrine disorders there is a typical localization of the deposits of fat, although the actual deposition of fat itself is not of endocrine origin.

Ovarian Activity

Postmenopausal obesity is often classified as endocrine, and explained as due to absence of ovarian activity. Neither oophorectomy nor menopause regularly causes obesity. Castration of men may result in fat or lean eunuchs, irrespective of the age at which the operation is performed. Those patients who become fat during the menopause, with advancing age or widowhood, and those living in institutions are usually in the psychogenic excessive intake group, and are using food as a substitute for the unavailable satisfaction of other appetites.

Pituitary Obesity

The diagnosis of Frohlich's disease (pituitary obesity with hypogenitalism) is probably made too often; and many cases diagnosed as Frohlich's are due to overeating with the typical childhood fat distribution of the abdomen, hips, thighs, and upper arms. In these young people puberty is often delayed as a result of the obesity itself. There is no indication for hormonal therapy, just as there is no indication for hormonal therapy in an adult who has become obese and lost his potency and libido. Both these disorders respond better to dietary control than to hormones. There are no experimental data that any of the isolated pituitary hormones produce obesity. Anatomically, Frohlich's own patient showed a tumor of the hypothalamus, and the obesity of this patient should be thought of as due to a disturbance of hypothalamic regulation rather than as a pituitary abnormality.

Hyperfunction of Adrenal Cortex

In hyperfunction of the adrenal cortex obesity is also not the rule. Some of the patients with Cushing's syndrome are obese, especially when the disease begins in childhood; but the weight may be normal in others and may be low in advanced cases. Even patients with subnormal weight show the typical fat distribution. More important in the development of obesity is the excessive gluconeogenesis from protein. Other authors attribute the gain in weight, which may also occur after the use of cortisone, to the general feeling of well-being in these patients.

Hyperinsulinism

Patients with hyperinsulinism quickly learn to prevent attacks by small carbohydrate feedings taken throughout the day. The result in many cases is obesity. Patients with functional hypoglycemia do not become fat, a fact which argues against the assumption that hypoglycemia reflexly causes excessive hunger, or that the increased production of insulin itself causes deposition of fat. Following successful operation, with return of the blood sugar to normal, appetite and obesity may persist, a fact which again demonstrates the influence of habit on the etiology of obesity.

Pickwickian Syndrome (Alveolar Hypoventilation Syndrome)

This rare disease is usually found in adults. There have been only five reported pediatric cases, two of which have come to autopsy. The classical findings are hyperphagia, obesity, somnolence, twitching, cyanosis, periodic respiration, polycythemia, right ventricular hypertrophy and right ventricular (congestive) failure, usually in that order. In each of two autopsies mild, low grade disturbances were found in the region of the hypothalamus (signs of chronic longstanding inflammation), which apparently triggered the appetite mechanism. The hyperphagia caused the obesity; the obesity caused the somnolence, which in turn caused twitching movements on sudden awakening; the cyanosis, periodic respiration and polycythemia were due to hypoemia, which in turn caused right ventricular hypertrophy and led to congestive failure.

Respiratory Reserve Decrease Due to Fat Tissue Replacement

Increase of abdominal girth by any means decreases respiratory reserve, and in the Pickwick cases there is some degree of adipose tissue replacement of the respiratory musculature. The total lung volume is decreased, the functional residual capacity is decreased, the respiratory reserve volume is decreased, and the arterial oxygen saturation is decreased. Many aspects of this syndrome could be reversed by weight loss.

Apparently the alveolar hypoventilation syndrome is common in the obese, with postural and thoracic kyphosis reducing vital capacity. An accumulation of fat in tissue surrounding the lungs (diaphragm, abdominal viscera, thorax) decreases the effective chest bellows. Fat in the abdomen raises the diaphragm, further reducing lung volume, and the diaphragm is even higher when the patient is supine. When obesity reaches a certain undefinable point, the work of breathing becomes excessive and the patient adjusts to a suboptimal ventilation by developing a refractory medullary state. The alveolar hypoventilation and curtailment of volume of air exchange means that the normal oxygenation of blood in the pulmonary capillaries cannot be maintained, with resultant decrease in arterial oxygen saturation and impaired CO_2 elimination.

Continued

Metabolism in Obesity

Protein Metabolism

The protein metabolism in obesity is normal; the excretion of creatine corresponds to the ideal weight. Cushinoid patients may be the exception and may present a negative protein balance. In this manner the protein stores of the obese are spared.

Fat Metabolism

The fat deposited in the obese body consists almost entirely of triglycerides. When excess fat is present, the body preferentially oxidizes the fat rather than the protein or carbohydrate. As a result of the demands of intermediary metabolism being met by fat, the blood carbohydrate level is elevated for a longer time and may simulate diabetes. If elevated for too long it may cause diabetes, which in these cases responds well to dietary management alone.

Ketosis

There is a resistance of the obese to ketosis, and of the male more so than the female. Although a lean fasting female excreted significantly more urinary ketones than were excreted by a lean fasting male, ensuing obesity abolished the female susceptibility to ketosis.

Prognosis

The prognosis of obesity depends on age. Childhood obesity is the least dangerous, and in the young adult the mortality of the obese is approximately equal to that of a normal person.

At Middle Age

The situation changes drastically around middle age. In 1923 Fisk showed that a person aged 45, who was 45 pounds overweight, had the same life expectancy as a normal weight person with valvular heart disease. In this age group, when the weight is 20 percent above average, mortality from all causes is 25 percent greater. In the same group, mortality from circulatory and heart disease is 43 percent higher; with vascular lesions of the central nervous system, 53 percent higher; and with diabetes, 133 percent higher. Probably the commonest abnormality of the obese is the development of hypertension.

Therapy

Caloric Intake

Since to lose weight the intake of calories must be less than the expenditure, diet alone or with adjuncts forms the basis of therapy. The various machinations of the metabolic system may vary to some extent the expenditure of energy in the same manner that two identical cars get different gas mileage; but the multitude of diet fads that have been suggested through the years are doomed to failure because of their failure to accept this basic fact. A negative energy balance is not harmful; consequently weight reduction can be accomplished in any patient, even in such conditions as pregnancy and peptic ulcer, the one exception being tuberculosis.

Psychotherapy

Obesity being a symptom and not a disease usually means that its pathogenesis encompasses more than one etiological factor. Because of this, unless

intensive psychotherapy is undertaken, what actually occurs is substitution therapy, i.e. one crutch is substituted for another. Instead of being dependent on food the patient may smoke heavily and chew gum constantly. Or he may transfer his dependence on food to dependence on his physician. The single most important factor is motivation. Basically, if the patient wants to lose weight badly enough, he will do whatever is necessary toward that end. This is the one reason why so many attempts at weight reduction are failures. The patient is exhorted by family, friends, and physician to lose weight, but in many cases he himself is too insecure to embark on a diet. The motivation aspect is the only reason why diuretics should sometimes be used at the beginning of a dietary regime, i.e. to increase initial weight loss.

Diet

Placing a patient on a diet that is excessively low in calories so that it cannot be varied easily or made acceptable to the patient is another reason for failure. It is suggested that a reducing diet contain 1000 to 1200 calories. The minimum amount of *protein must be 60 grams,* with the rest of the diet adapted to the wishes of the patient. *Vegetables,* which are poor in calorie content but high in satisfying quality, usually form much of the bulk. *Laxatives* are generally necessary because of the reduction of bulk. Massage has no value except for the masseur; in fact the appetite is usually stimulated by massage. The same is true of Turkish baths, which cause weight loss by dehydration. The next glasses of water the patient drinks bring him back to his former weight.

Anorexic Agents

Anorexic agents or appetite depressants are commonly used to prevent intolerable hunger putting an end to the diet regime. These are central nervous system stimulants, and depress appetite. There are two drawbacks to these agents. When the effect of the stimulant has worn off, often excessive tiredness and fatigue becomes apparent with return of appetite.

Total Fasting

During the past two years Garfield Duncan and co-workers have instituted a regime of total fasting for resistant cases of obesity. The fast, carried out in a hospital for a period of no longer than fourteen days at one time, averages 2.6 pounds weight loss per day. Hunger almost disappears within 48 hours due to ketosis, which by the second day is usually fairly well marked. The development of anorexia is in direct proportion to the degree of ketonemia. Water, weak tea or coffee, artificial sweetening agents, and beverages devoid of nutritional content are allowed ad lib. Polyvitamins are given orally in therapeutic amounts.

The patient is sent home on a diet varying between 1300 and 1900 calories, and although little if any weight loss is accomplished, he will tolerate this diet much more happily than an exceedingly low calorie diet. Any weight gain is over-corrected, and a further weight loss ensues with one or two day fasts at appropriate intervals at home, or a further admission to the hospital for another long fast. Patients are ambulatory during the fast periods, but physical exercise is discouraged. This plan of therapy in hospital and at home is projected into the future until near normal weights are achieved. Contra indications to this severe regime would include pregnancy, peptic ulcer, hepatic insufficiency, infection, and uncontrolled labile diabetes.

M. Rubin, M.D.
Mt. Sinai Hospital

Continued

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11–36 can be obtained from Grand Rounds Editor at Mt. Sinai Hospital.

An Open Mind

An open mind is all very well in its way, but it ought not to be so open that there is no keeping anything in or out of it. It should be capable of shutting its doors sometimes, or it may be found a little draughty.—Samuel Butler

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A wonderful discovery — psychoanalysis. Makes quite simple people feel they're complex.—S. N. Behrman

---

What I mean is this — all good doctors must be primarily enthusiasts. They must have, like writers and painters, and priests, a sense of vocation — a deep-rooted, unsentimental desire to do good.—Noel Coward

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The American people never carry an umbrella. They prepare to walk in eternal sunshine.—Alfred E. Smith

---

A Conservative

A conservative is a man with two perfectly good legs who, however, has never learned to walk.—Franklin D. Roosevelt

Important news in cardiac therapy

Two new clinical reports document successful long-term treatment of ischemic heart disease with

Persantin®, brand of dipyridamole

See next 3 pages

Study 1.
Griep, A.H.: Long-term Therapy of Ischemic Heart Disease With Oral Dipyridamole: A Report of Fifty Cases. Angiology 14:484, 1963.

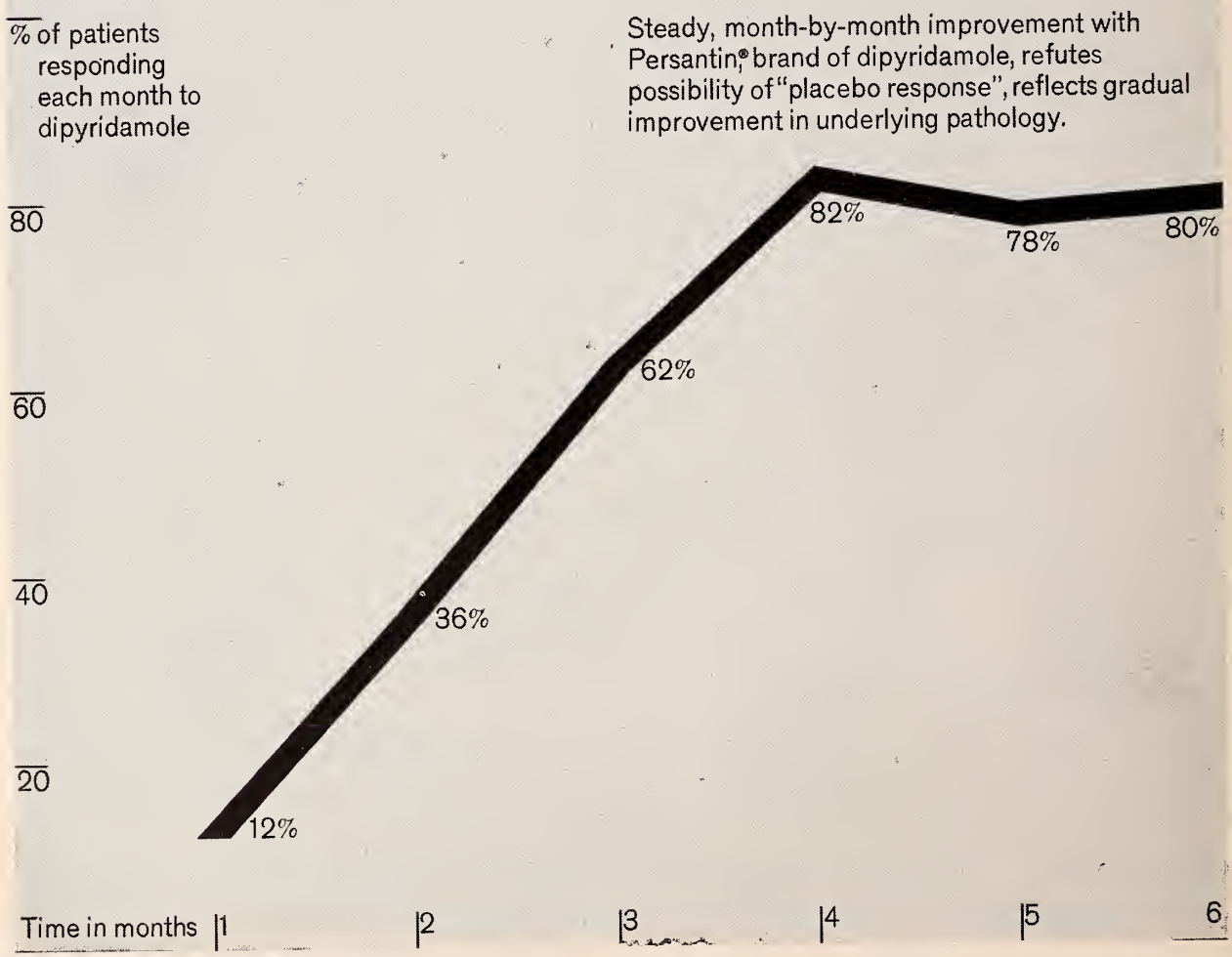
Persantin,® brand of dipyridamole, 25 mg. t.i.d. or q.i.d., was administered continuously for 6 months to 50 patients with well authenticated ischemic heart disease with angina pectoris and ECG abnormalities. Results were evaluated on a monthly basis.

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Study 2.
Wirecki,M.: Dipyridamole (Persantin®): Evaluation of Long-Term Therapy in Angina Pectoris. Current Therapeutic Research 5:472, 1963.

In 40 ambulatory patients with myocardial ischemia, angina pectoris, and abnormal ECG findings, Persantin,® brand of dipyridamole, 25 mg. t.i.d., was administered continuously for 3 months.

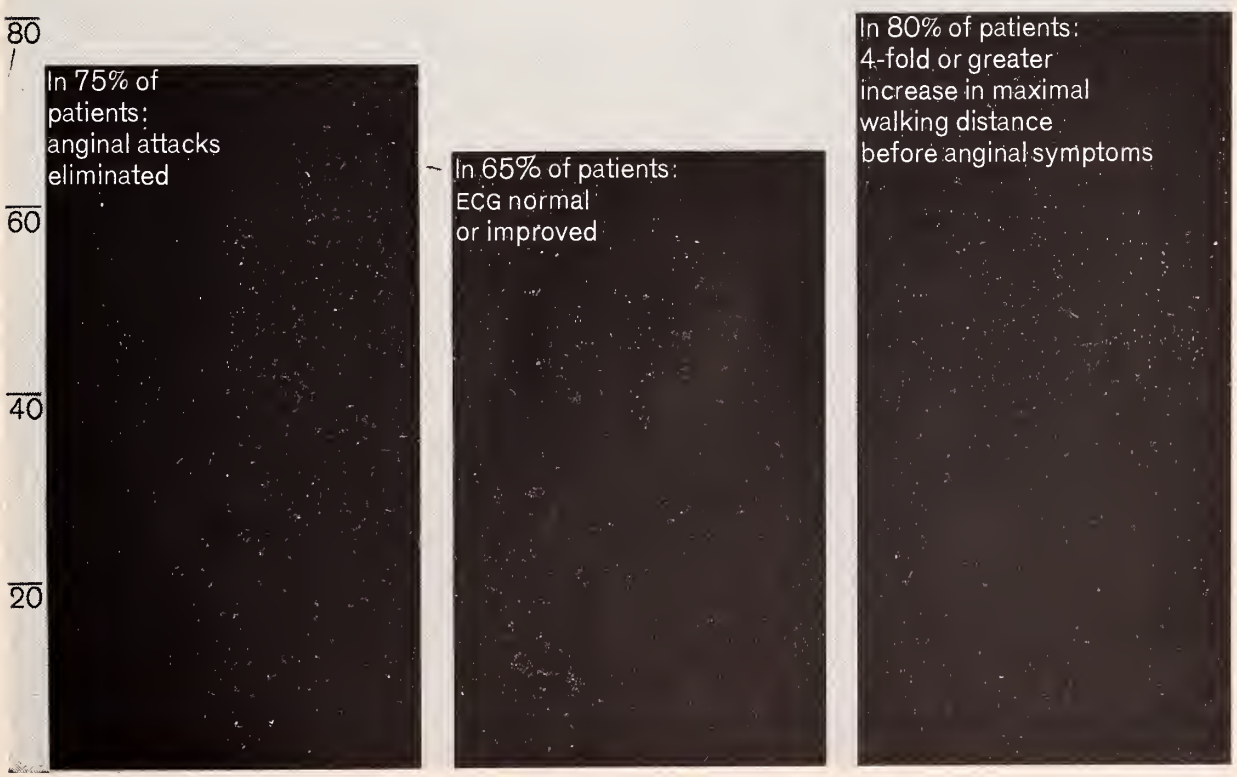
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After 3 months, 32 of 40 patients showed:

"...reduction or abolition of acute anginal attacks...

"complete or almost complete disappearance of ECG abnormalities...

"marked increase" in walking distance without anginal symptoms



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Prolonged oral administration of dipyridamole to animals with experimentally induced stenosis of a major coronary artery resulted in superior development of collateral coronary anastomoses and longer survival compared with controls.[6-9]

When given for prolonged periods and in adequate dosage, dipyridamole improves the coronary flow deficit of the ischemic myocardium while supporting cardiac metabolism during the period of repair. Clinically, this is manifested as steady improvement – anginal attacks diminish in frequency and intensity, as do other manifestations of insufficiency (dyspnea, fatigue, and, in many instances, abnormal electrocardiographic findings).

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Abstracts, Briefs and Commentaries

ADENOMA MALIGNUM OF THE CERVIX

The authors presented five case reports of adenocarcinoma of the cervix in which the primary lesion was originally interpreted as benign. Despite the benign histologic appearance, the tumor metastasized early and responded poorly to conventional therapy.

Adenoma malignum was suggested as a term to separate this highly differentiated tumor from the more commonly encountered adenocarcinoma of the cervix which responds satisfactorily to therapy. In adenoma malignum the glands are lined by a single layer of cells which are not recognizable as abnormal. This apparently normal gland cell pattern may persist to the ultimate destruction of the patient. The glands, however, are abnormal in form and arrangement and characteristically vary in size. The small glands with sharp projections apparently pushing into the surrounding connective tissue are reliable criteria for diagnosis. The authors urged that, in addition to the prompt recognition of the tumor, it be separated from the other adenocarcinomas of the cervix. This would permit the application of ultraradical surgery to this ordinarily incurable malignancy.

Leon L. Adcock, M.D.
Minneapolis, Minn.

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PREGNANCY AND LABOR FOLLOWING CESAREAN SECTION

In an effort to validate the hypothesis that it is desirable from a maternal and fetal point of view to allow patients with a history of previous Cesarean section to await spontaneous onset of labor and to anticipate vaginal delivery, the following study was done.

The records of all patients with previous Cesarean section admitted to New York Lying-In Hospital from 1932-1960 were reviewed. During this period 2,377 patients were admitted. Of these pregnancies 283 or 12% terminated in abortion and 2,094 were premature or term deliveries.

Continued

Individualization of each case is stressed in the management of these patients. Previous obstetrical history is collected and post-operative complications are reviewed. X-ray pelvimetry is obtained if not already done. Management during labor consists of careful monitoring of vital signs, an open intravenous pathway and available blood for replacement. The decision for repeat section is made early in labor and if there is no recurrent or new indication for Cesarean section, the labor is allowed to continue. Oxytocin stimulation or induction is avoided and the second stage is shortened with appropriate forceps. The uterus is carefully palpated and any defect or thinning of the myometrium is noted.

Of the 2,094 patients, 63% had repeat Cesarean section and 37% delivered vaginally. Of those having repeat section, the incidence on the private service was 79% while the clinic service was 49%. The incidence of repeat section in the private service has remained stationary while the incidence in the clinic service has decreased to 45%. The incidence of classical sections has dropped from 67% to 15% while the incidence of low transverse section has risen from 31% to 82%.

Four maternal deaths resulted. Two occurred following vaginal delivery, but in no way related to type of delivery. Two deaths occurred following repeat section but the section was clearly indicated.

The incidence of uterine rupture was 1.05% (22 ruptures). No maternal death resulted but fetal loss was 36% with all fetal loss occurring in patients with previous classical section. Fourteen of the 22 ruptures occurred in classical scars. In addition, 133 myometrial defects were palpated at delivery or repeat section. The authors feel that with low transverse section the problem of fetal loss with uterine rupture is essentially eliminated.

The prematurity rate is higher (7.3 vs 6.0) and perinatal mortality is higher (5.0 vs 2.8) than non-section rates. There were 106 neonatal deaths and stillborns. It was felt that of the 8 fetal deaths resulting from rupture of the uterus, two would have been avoided by repeat section. However four neonatal deaths following repeat section were felt avoidable had vaginal delivery occurred.

The authors conclude that even a moderate defect in a transverse scar is of little clinical importance. Perinatal mortality is higher, but only because of inherent factors in this group. Individualized management of each patient decreases the incidence of repeat Cesarean section with greater safety to the mother and infant.

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Minneapolis, Minn.

Douglas, R. G., Birnbaum, S. J., and MacDonald, F. A.: Amer J Obstet & Gyn 86:961, Aug 1 1963.

CARDIAC ARREST AND THE OBSTETRICIAN-GYNECOLOGIST

Cavanagh et al reviewed the literature and noted that cardiac arrest occurs in 1 out of every 1,500 anesthetics and between 5,000 and 10,000 times annually in the United States. The incidence in Obstetrics is unknown but gynecologic patients are affected as often as general surgery patients. The authors reviewed 30,000 deliveries and 5,048 gynecologic patients from 1957-1961 and found 10 cases of arrest, 4 obstetric and 6 gynecologic patients. Eight patients had "open chest" massage and only one survived. Two patients had "closed chest" massage and both survived without sequelae.

A period of arrest over four minutes is rarely compatible with complete recovery. Predisposing factors were chiefly rapid blood loss or hypoxia under anesthesia. Other factors included hypercapnia, epinephrine overdosage, previous cardiopulmonary disease, high spinal anesthesia, vagal stimulation, and premedication with phenothiazine derivatives or reserpine.

The authors stressed the importance of early recognition of cardiac arrest — manifested by warning signs such as hypotension, arrythmias, dyspnea and muscular twitching. Absent heart beat or carotid pulse are diagnostic, but treat the patient anyway if in doubt.

The authors stressed the need for proper equipment in all delivery and operating rooms, including rib retractor, defibrillator, EKG, CaCl, Epinephrine, and Isuprel.

The suggested steps in management of cardiac arrest are as follows:

Closed Method:

1. Stop anesthesia
2. Give Oxygen with positive pressure or mouth-to-mouth breathing — 20 times a minute
3. Elevate the legs to aid venous return.
4. Institute "closed chest" massage *immediately.* The heel of the hand compresses the lower sternum 1½ to 2 inches at the rate of 60 times a minute. One must get a carotid pulse or a blood pressure of 80 mm. of mercury or more.
5. Get EKG to rule out ventricular fibrillation
6. Use defibrillator externally if ventricular fibrillation exists.
7. Use "open chest" massage if more than one minute failure with closed method
8. Use supportive therapy including pressure over the aorta to increase cerebral and pulmonary return, vasopressors, and CaCl for stimulation.
9. Stop massage only if no pulse is obtained or persistent dilatation of the pupils is present.

The authors review post-resuscitation care including use of hypothermia.

In cardiac arrest in the newborn: Suction, give oxygen and use two fingers over midsternum, compress 1 to 2 cm. and press 120 times a minute. Ventilate twelve times a minute.

The authors believe the "closed method" of massage to be at least as effective as the "open method."

Gerald R. O'Brien, M.D.
Minneapolis, Minn.

Cavanagh, D., De Cenzo, J., Ferguson, J.: Cardiac Arrest & the Obstetrician-Gynecologist, Obst & Gynec, 22:56, 1963.

PLACENTAL TRANSFER OF INSULIN

Many studies have been done to determine the placental permeability to insulin. Early indirect studies measured only changes in the blood glucose concentration on each side of the placenta after insulin was injected on only one side. As methodology improved direct attacks on the problem included labeled exogenous insulin studies and bioassays of endogenous insulin. The purpose of this study was to measure directly human insulin on such side of the placenta using a specific assay method (radio-immunoassay).

Thirty normal term deliveries were studied without regard to the time of the last feeding. Blood samples were simultaneously drawn from a maternal antecubital vein and from the umbilical cord vein. The blood was analyzed for both insulin and glucose content.

The blood was analyzed for glucose content by a method of Nelson and Somogyi. The glucose concentration was essentially the same on both sides of the placenta with a slight trend toward lower values on the fetal side.

Continued



For comprehensive control of the whole pain complex... helps the whole patient

Like a triad, the action of Trancogesic is direct and simple as 1,2,3. Its tranquilaxant component – chlormezanone – 1. reduces emotional reaction to pain . . . 2. decreases skeletal muscle spasm . . . and 3. its aspirin component dims the patient's perception of pain. Thus, Trancogesic controls the *whole* pain complex, helps the *whole* patient – *with unsurpassed tolerance.*

Each tablet of Trancogesic contains 100 mg. of chlormezanone and 300 mg. (5 grains) of aspirin. The usual adult dosage is 2 tablets of Trancogesic three or four times daily; the dosage suggested for children from 5 to 12 years is 1 tablet three or four times daily. Reactions to Trancogesic have been minor – gastric distress, and an occasional weakness, sedation or dizziness. Ordinarily, these may be reversed by a reduction in dosage or temporary withdrawal of the drug. Trancogesic is contraindicated in persons known or suspected to have an idiosyncrasy to acetylsalicylic acid. WINTHROP LABORATORIES, NEW YORK 18, N. Y.

TRANCOGESIC*
CHLORMEZANONE with ASPIRIN

*TRADEMARK 100 MG. 300 MG.

Winthrop

-1778M

Plasma insulin was measured on both sides of the placenta. Whereas the maternal value was variable with a wide range of scatter, the umbilical venous plasma insulin was at a relatively low, constant level.

These results were interpreted as direct evidence that natural human insulin, as measured by an immunoassay technique, did not freely pass the placental barrier.

William N. Spellacy, M.D.
Frederic C. Goetz, M.D.
Beryl Z. Greenberg, M.S.

POSTOPERATIVE PNEUMOPERITONEUM

Pneumoperitoneum following abdominal operations is a common but not invariable finding according to the authors. In event of a postoperative complication, the x-ray demonstration of intra-abdominal free air may necessitate differentiation between residual air and that from abscess or wound leakage. The authors have evaluated various situations and factors as to pneumoperitoneum causation. In their study, they have used 194 consecutive patients with all types of abdominal surgery. Films were taken in upright or left lateral decubitus position within 12 hours of surgery and then at 24 or 48 hours until all free air had disappeared. In the series, of 194 patients, 113 or 58.2% had postoperative free air noted. Of these, 80 still had free air after 48 hours.

The various studied areas and the findings were:

1) Type of procedure — The largest amount of air was seen in those with upper abdominal or pelvic surgery. Absorption varied from 1 to 24 days. Of 40 pelvic operations, such as hysterectomy, 58% showed free air. None of the vaginal hysterectomies showed a resultant pneumoperitoneum.

2) Type of incision — Vertical epigastric (70%) and vertical suprapubic (65%) showed the greatest incidence, but no real relationship could be drawn.

3) Drainage of cavity — This showed little effect upon incidence, although in rare occasions increased air accumulated until the drain was removed (occurred only in upper and not lower abdominal surgeries).

4) Presence of peritonitis — The rate of air disappearance was the same with or without the infection.

5) Anesthesia — Although spinal showed a lesser incidence of free air than general anesthesia no conclusions could be drawn.

6) Incidence of pulmonary complication — 10% of those with pneumoperitoneum had major pulmonary complications while the group without free air showed a 9% incidence of such complications.

7) Effect of body habatus — 80% of thin patients regardless of operation type or incision location showed free air while less than 25% of obese patients showed similar findings. Absorption in these obese patients was also much faster with all cases except one showing all free air gone within 3 days.

One other finding is of interest. To get maximal air pictured the patient must be maintained in a set position for greater than 5 minutes.

This the survey points out that only the body habitus is a consistent factor in evaluation of free air. Time of disappearance depends upon initial amount and isn't influenced by type of surgery, location, or infection. Serial films with the patient in the same position for at least 5 minutes and the recognition of drains presence is the only sure way to properly evaluate a pneumoperitoneum except possibly in the obese patient.

Lawrence J. Singher
Minneapolis, Minn.

Bryant, Lester R., Wiot, Jerome F., and Kloecker, Richard J.: A Study of Factors Affecting the Incidence and Duration of Postoperative Pneumoperitoneum. Surg Gyn Obstet 117:14, 1963.

Continued

A NOVEL INTEGRATED SYSTEM FOR DETERMINATION OF NEUTRAL 17-KETOSTEROIDS IN URINE

The ketosteroid conjugates in an aliquot of a 24-hour urine specimen are hydrolyzed sequentially by mammalian β-glucuronidase (1000 units/ml) and by solvolysis with $2x10^{-4}$ *M* H_2SO_4 in ethyl acetate.[1] The liberated steroids are separated by thin-layer chromatography on 5 x 20 cm glass strips coated with a 0.25 mm thick layer of "aluminium oxide G" containing 15% $CaSO_4$ (E.Merck, Darmstadt). After preparation, the coated plates are "deactivated" in a water-saturated atmosphere at 25°. Ascending chromatography is performed with varying concentrations of ethanol in benzene, solvent flow being about 15 cm in 60 min. Steroid zones are tentatively identified by spraying with typical chromogenic reagents, for example 1% *m*-dinitrobenzene in methanol followed by 3*N* KOH in methanol and gentle heating (sensitivity ~ 0.2 μg). Mixtures of standard substances may be separated as follows, R_f values ($\pm$ 0.03) in parentheses: solvent 0.1% ethanol-benzene, $\triangle^2$-androstene-17-one (0.80), androstane-3,17-dione (0.22), etiocholane-3,17-dione (0.15); solvent 2% ethanol-benzene, androsterone (0.68), dehydro*iso*androsterone (0.62), etiocholanolone (0.54), 11-keto-androsterone (0.43), 11-ketoetiocholanolone (0.34), 11-hydroxyandrosterone (0.27), and 11-hydroxyetiocholanolone (0.23). Semiquantitative estimation (0.5-20 μg, $\pm$ 20%) of these substances in urine extracts is possible by visual inspection of Zimmermann-positive areas. For greater accuracy and essentially complete recovery, the adsorbent layer after chromatography is cut into 2 mm wide bands, each of which is scraped off the carrier plate into a small test tube or spectrophotometer cuvette. A modified Zimmermann reagent (*m*-dinitrobenzene and benzyltrimethylammonium hydroxide[2] in methanol[3]) is added directly to the dry adsorbent, incubated with occasional shaking at 37° for 10 min., and diluted with 75% ethanol. After brief centrifugation, optical density of the clear supernatant is determined at 530 nm. The sensitivity (ϵ_{mol} 2.2 x 10^4) and low background absorption (0.2 $\pm$ 0.15 μg/2 mm fraction) make it possible to determine as little as 1 μg of a 17-ketosteroid with some accuracy. For example, from a mixture of the 3 substances androsterone, dehydro*iso*androsterone, and etiocholanolone, total 3.22 μg, there was recovered after chromatography 3.18 μg (98.8%) in 3 discrete zones. Similarly, 26.8 μg of a mixture yielded 26.4 μg (98.6%).

Application of the complete method as described to 1/250 of a 24-hour urine specimen obtained from a woman with the Stein-Leventhal syndrome during and immediately after corticotropin stimulation yielded the following tentatively-identified 17-ketosteroids (mg/24 hr, uncorrected for differences in chromogenic value, in parentheses): etiocholane-3,17-dione (0.3), androsterone (10.2), dehydro*iso*androsterone (1.8), etiocholanolone (6.9), 11-ketoandrosterone (0.4), 11-ketoetiocholanolone (3.8), 11-hydroxyandrosterone (1.8), and 11-hydroxyetiocholanolone (1.8).

William D. Cohen
Minneapolis, Minn.

1. Segal, L., Segal, B., and Nes, W. R., J Biol Chem, 235:3108, 1960.
2. Corker, C. S., Norymberski, J. K., and Thow, R., Biochem J, 83:583, 1962.
3. Beale, R. N. Bostrom, J. O., and Croft, D., J Clin Path, 15:574, 1962.

PREGNANCY AND RENAL DISEASE

Increased awareness of the problem of renal disease complicating pregnancy has occurred as a result of the ability to classify the various diseases histologically from percutaneous renal biopsy specimens. One hundred fifty such patients were evaluated over a ten-year period at the Royal Women's Hospital, Melbourne. Eight patients developed acute nephritis between the eighth and twenty-eighth week of gestation. The blood pressure of each patient was elevated. In three patients the pregnancy progressed to viability and the infants survived; the blood urea of these patients ranged from 50 to 83 milligrams percent. Fetal death in utero occurred in one patient in whom the blood urea was 62 milligrams percent. Another patient had a spontaneous abortion at 15 weeks gestation; the blood urea was 312 milligrams percent and the blood pressure was 130/90. Three patients had termination of the pregnancy.

The other 142 patients were classified as having chronic renal damage. Forty-six patients were observed with persistent proteinuria and normal renal function, seven presenting with nephrotic syndrome. Pre-eclampsia occurred in 16 (35%), the fetal survival being 70%. In those patients who did not have pre-eclampsia the fetal survival was 90%.

Abnormal renal function and moderate hypertension (less than 175/110) were encountered in 38 patients. Twenty-three (60.5%) of the infants survived. Termination of pregnancy was performed on six patients, four infants died in utero and there were five neonatal deaths. Deterioration of the patient's condition occurred in 19 cases. In 13 significant change did not occur and in six the information was not complete.

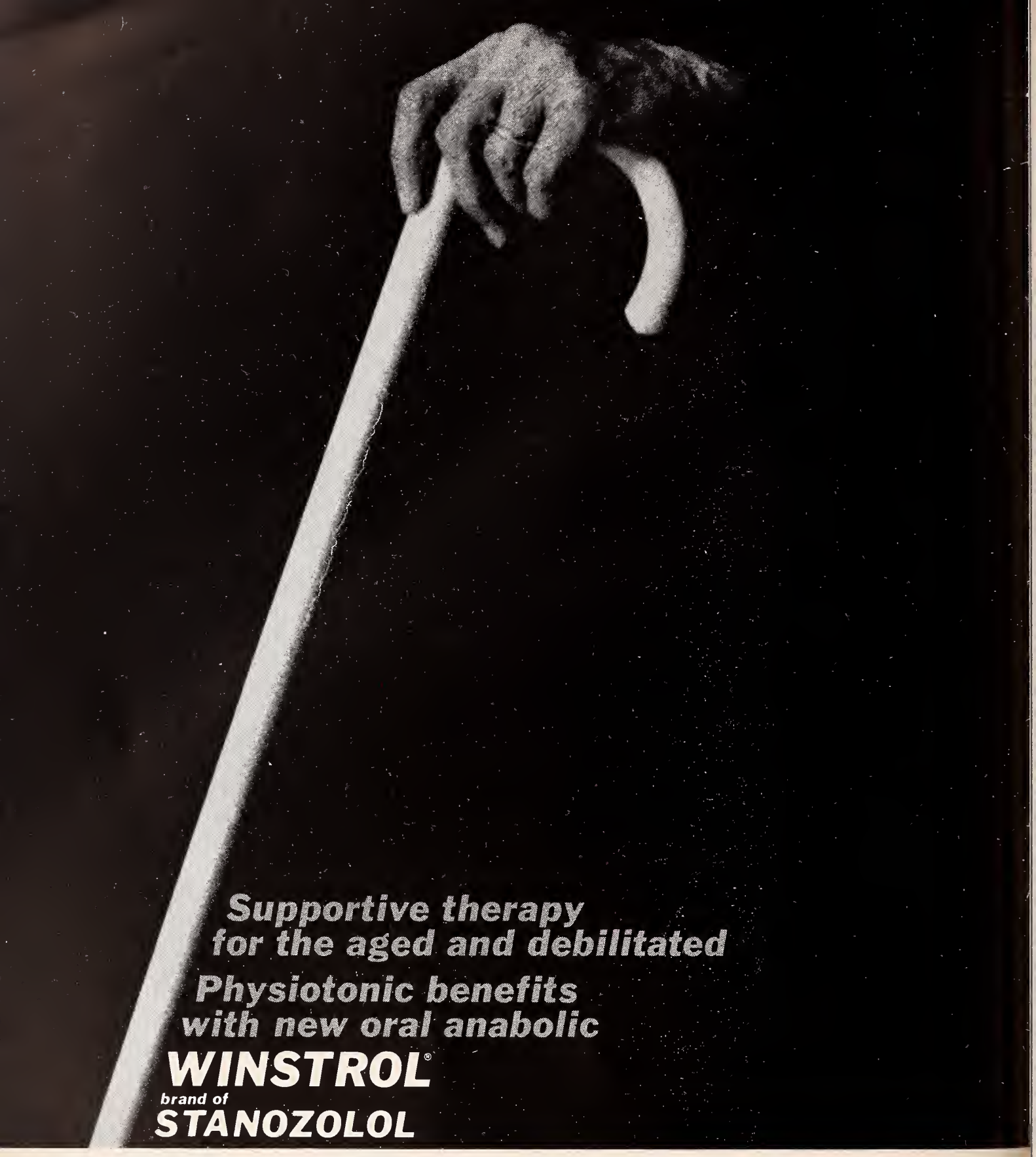
Abnormal renal function and hypertension exceeding 175/110 were observed in 25 patients, fetal loss occurring in 15 (60%). Termination of pregnancy was performed in six patients, spontaneous abortion occurred in four and fetal death in utero in three cases. Neonatal deaths occurred in two infants. The patients' condition deteriorated in eight, no change occurred in five and the remaining cases could not be assessed.

Abnormal renal function with evidence of chronic infection was noted in 33 patients. The fetal loss was 24%. Termination of pregnancy was performed on four patients. The maternal condition deteriorated in 12 patients. There was no change in eight and evaluation was not possible in 13. Nephrectomy was performed in two patients during pregnancy without complications. Three patients had renal tuberculosis.

In the patients with chronic renal damage, none of the infants survived when the blood urea was over 60 milligrams percent. The only patient that died had chronic pyelonephritis. She expired on the sixth day of the puerperium. Pulmonary embolism and cerebral hemorrhage were found at autopsy. Of the 104 patients with impaired renal function, four had died within two years. Termination of pregnancy had been performed on 19 of these patients. Deterioration in renal function occurred in 27% of the patients with chronic renal damage. It was the impression that pregnancy prolonged the illness in acute nephritis. Two patients with chronic renal damage had positive L.E. cell tests. The degree of proteinuria had little effect on the fetal outcome. The author, from unpublished data states that the fetus grew satisfactorily and maintained adequate levels of plasma proteins in spite of low levels of protein in the mother.

Thorough evaluation of all patients with possible renal disease is advocated early in pregnancy. Termination of pregnancy is sometimes indicated but a

Continued



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NSTROL (stanozolol-Winthrop), a heterocyclic steroid, combines ent anabolic effects with outstanding tolerance, stimulates appe- and promotes weight gain ... restores a positive metabolic balance. counteracts the catabolic effects of concomitant corticosteroid or TH therapy. WINSTROL (stanozolol-Winthrop) rebuilds body tissue ile it builds strength, confidence and a sense of well-being in con- ons associated with excess protein breakdown, insufficient protein ake and inadequate nitrogen and mineral retention.

e Effects and Precautions: Prolonged administration can produce d hirsutism, acne or voice change. In an occasional patient, edema s been observed and in young women the menstrual periods have en milder and shorter. These side effects are reversible, and pa- nts receiving prolonged treatment should be examined and ques- tioned periodically so that, should side effects appear, the dosage may be reduced or administration of the drug discontinued for a time. In patients with impaired cardiac and renal function, there is the possibility of sodium and water retention. Liver function tests may reveal an increase in bromsulphalein retention, particularly in elderly patients. In such cases, therapy should be discontinued. Although it has been used in patients with cancer of the prostate, its mild androgenic activity is considered by some investigators to be a contraindication.

Dosage: Usual adult dose, 1 tablet t.i.d. before or with meals; young women, 1 tablet b.i.d.; children (school age): up to 1 tablet t.i.d.; children (pre-school age): ½ tablet b.i.d. Available as scored tablets of 2 mg. in bottles of 100. For best results, administer with a high protein diet.

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"trial of pregnancy" is recommended. Sterilization is recommended in those patients with decreased renal function, particularly if they already have one or two children. In milder cases, renal biopsy is of great value to determine the degree of glomerular involvement. Should significant glomerular changes be present, further pregnancies are not in the best interests of the patient. A finding of some interest was the improved prognosis for some of the fetuses in pregnancies subsequent to the first, particularly when hypertension was present.

Leon L. Adcock, M.D.
Minneapolis, Minn.

Mackay, E. V.: Pregnancy and renal disease. Aust N Z J Obstet Gynaec 3:21, 1963

MANAGEMENT OF INCOMPLETE ABORTIONS

This study represents an analysis of 500 consecutive cases of incomplete abortions at the Queens Hospital Center in 1954 and 1955. The diagnosis of incomplete abortion was made on the basis of history and physical examination requiring a dilated cervical os or gross products of conception in the vaginal vault or the cervical canal. This tissue was removed with ring forceps followed by an intravenous infusion of oxytocin in dilute solution, a series of ergotrate, 0.2 mgm, every four hours for six doses, and then elective dilatation and curettage. Antibiotics were reserved for those patients who demonstrated morbidity, that is, a temperature of 100.4 degrees or more. The only indication for immediate curettage was an uncontrollable hemorrhage in spite of the above regime. The authors felt that the routine use of oxytocin infusion was of utmost importance. This procedure yields a better involuted uterus which will facilitate the technique and safety of the curettage. They felt that the oxytocins completely emptied the uteri in a large number of cases in the 14-20 week gestation group. The hemostatic quality of oxytocins is shown by the fact that the average hospital stay prior to curettage was 2.7 days, and that only 1.2% of the patients needed emergency curettage. 90% of all patients needed curettage. They found it extremely difficult to accurately differentiate between those that were complete abortions and those that were not after oxytocins and ergotrate. The routine dilatation and curettage is safe and reduces the hospital stay, blood loss, morbidity, and convalescence time. They advocated the use of antibiotics when indicated in adequate doses. They also felt that the promiscuous employment of prophylactic antibiotics may not only be useless but harmful because the incidence of postoperative morbidity through a change in the natural flora may be increased.

Robert A. Diamond, M.D.
Minneapolis, Minn.

Levin, A. C., Rizzi, J. N., and Veprovsky, E. C.: Am J Obstet & Gyn 83:9, Jan 1 1962.

MANAGEMENT OF INTRAUTERINE FETAL DEATH

The authors report the outcome of 492 fetal deaths in utero in approximately 86,000 deliveries. Their incidence of intrauterine fetal death was 0.6% excluding fetal death under 20 weeks gestation and those occurring less than 24 hours prior to the onset of labor. Most fetal deaths were between the 29th and 34th week of pregnancy.

The major known causes of death were: erythroblastosis fetalis 13%, congenital anomalies 9%, cord complications 8%, diabetes mellitus 6%, toxemia of pregnancy 3%, premature separation of the placenta 3% and external version 2%. The cause of death was unexplained in 53% of the cases.

Continued

Associated conditions which may have contributed to the intrauterine fetal death were genital urinary tract infections 11%, premature rupture of membranes 5%, hydramnios 5%, and bleeding during pregnancy 4%.

Following intrauterine death 84% of the mothers delivered within 3 weeks and the fetus was expelled in 94% of all cases within 5 weeks. Of the 29 patients (6%) who retained the dead fetus over 5 weeks, 20 produced an erythroblastotic fetus.

Spontaneous labor began in 413 cases (84%). Labor was induced in 52 cases (10%). In 29 of the 52 cases the induction was done for non-obstetrical reasons. The inductions were uniformly successful and uncomplicated.

Thirty-five abdominal deliveries were performed. The indications for abdominal delivery were: previous C-Section 20 cases, obstetrical complications 14 cases, and psychiatric disturbance 1 case.

Complications encountered with fetal death in utero included: excessive blood loss 24 (5%) patients, hypofibrinogenemia 10 (2%) patients, ruptured uterus and uterine infection 1 patient each.

Twenty of the 24 patients with excessive blood loss retained the dead fetus over 5 weeks. All 10 patients with hypofibrinogenemia had associated erythroblastosis fetalis. Nine of these retained the dead fetus over 5 weeks. For the 29 patients who retained the dead fetus over 5 weeks the incidence of hypofibrinogenemia was 33% compared to the overall incidence of 2%. Serum hepatitis developed in one patient (1%) who received fibrinogen. This is comparable with the reported incidence of 5-10%.

Because labor begins spontaneously in a majority of patients there is generally a reluctance to artificially terminate cases of fetal death in utero. Reasons for not interfering include: risk of infection, frequent failure of pitocin inductions, and the hazards of intrauterine manipulation.

The authors postulate the Rh sensitized patients contributed a majority of the cases of hypofibrinogenemia, because fetal death usually occurs earlier in pregnancy and spontaneous labor is less likely to ensue at an early date.

The clotting mechanism is usually not altered until 5 or more weeks after fetal death. The authors do not feel that this is sufficient reason for the routine early termination of pregnancy, especially if the fetus dies from no apparent cause. Hypofibrinogenemia rarely occurs in these cases.

Awaiting the onset of labor or restricting artificial termination of pregnancy to obstetrical indications or until the patient is favorable for induction of labor is felt to be the most desireable management of the fetal death in utero.

John W. Utrie, M.D.
Minneapolis, Minn.

Goldstein, D. P., Johnson, J. P., and Reid, O. E.: OB & Gyn 21:5, May 1963.

CONE BIOPSY OF THE CERVIX

The authors from the University of Miami summarized their experience with with 486 diagnostic conizations of the cervix performed because of an unexplained positive Pap smear or because a punch biopsy indicated intra-epithelial carcinoma of the cervix. The primary purpose of the study was to determine the effectiveness of conization in detecting and differentiating invasive and non-

invasive cervical carcinoma. The value of cervical conization was measured by comparing the tissue obtained by conization with that removed by punch biopsy and hysterectomy when possible, in the same patient.

In 345 cases both punch biopsy and conization specimens were taken within a short interval. In 110 (one-third) of the cases the punch biopsy failed completely to demonstrate the dysplasia, intra-epithelial carcinoma, or invasive cancer subsequently found in the cone specimen. Understandable concern is expressed for the grave consequences which might have resulted had reliance for diagnosis been placed solely on the punch biopsy. Most certainly, without the cone biopsy, the treatment of many of these women would have been inadequate.

The authors pointed out in their discussion of cervical conization that with the increasing use of cancer smears physicians will be managing more patients who have a positive smear but no cervical lesion, no symptoms suggestive of cancer, and a negative punch biopsy. They emphasized that in this situation the only alternative to cone biopsy is hysterectomy but hastened to point out that hysterectomy is never indicated by a positive smear alone and when performed in this circumstance is inadequate treatment if the patient should have the invasive form of the disease. Also in this vein the authors stated that conization alone as a treatment for intra-epithelial carcinoma of the cervix is hazardous, because 30 per cent of these women so treated in their series had residual intra-epithelial carcinoma when the uterus was subsequently removed.

Based on their experience they also concluded that a properly performed cervical conization is not a dangerous procedure from the standpoint of morbidity, mortality or hemorrhage (operative, immediately post-operative or delayed); and that cervical stenosis will not be a complication if the cervix is sounded frequently to keep the canal dilated. Neither infertility nor cervical incompetency has been a problem in this series of patients.

William A. Treat, M.D.
Minneapolis, Minn.

Schulman, H., and Ferguson, J. H.: Cone Biopsy of the Cervix. J Obstet & Gyn of Brit Comm 69:474, 1962.

ANESTHESIA AND MATERNAL MORBIDITY

Of a total of 3,421 deliveries, 534 operative deliveries (167 cesarean sections and 367 forceps) were studied in an effort to ascertain the relative risks to the mother and fetus of general anesthesia and local anesthesia.

Induction of general anesthesia was carried out with either cyclopropane, thiopentone or ether. After induction the anesthesia was continued with mixtures of nitrous oxide and oxygen.

All of the cesarean sections and 198 forceps deliveries were conducted with general anesthesia. The remainder of the forceps deliveries were done with pudendal nerve block. Only 32% of the cesarean sections could be adequately prepared for general anesthesia.

Although there were no maternal deaths from any method of anesthesia, only the pudendal nerve block was unattended by serious complications. The incidence of postpartum hemorrhage was 5.3% for forceps deliveries under pudendal block and 17% for forceps deliveries under general anesthesia. There was regurgitation of stomach contents with the risk of serious pulmonary complications with all three types of general anesthesia. There were two cases in

Continued

which pulmonary aspiration occurred. The incidence of postanesthetic pneumonia was 3%. There was a high incidence of post-general anesthetic discomforts ranging from sore throat to nausea and vomiting.

The incidence of severe neonatal asphyxia was least with pudendal block (11.3%), greater with cyclopropane (33.2%) and thiopentone (26.9%) and greatest with ether (81.5%). The greater length of time necessary for induction with ether (26.7 min.) in comparison to cyclopropane (13.8 min.) and thiopentone (15.8 min.) may explain the marked increase in neonatal asphyxia for that agent.

It is concluded that local anesthesia is considerably safer for both the mother and fetus than general anesthesia and that forceps deliveries under local anesthesia are not only satisfactory but desirable.

Franklin D. Loffer, M.D.
Minneapolis, Minn.

Huntingford, P. J.: Anesthesia and Maternal Morbidity. Brit Med J 1:1195, May 4, 1963.

Mortality of Delay

Dr. Nicholson Eastman, while addressing the Duluth Surgical Society and the Interurban Academy of Medicine, on 22 May 1963, described the mortality of appendicitis occurring during pregnancy as the "mortality of delay." Dr. Eastman directed attention to the fact that mortality due to appendicitis during the first two trimesters is comparable to that mortality in the non-pregnant female. However, mortality figures for appendicitis which occurs in the third trimester range from 10% before labor to 15% during and after labor. This experienced obstetrician emphasized the responsibility of the surgeon to treat the primary disease, appendicitis, regardless of the stage of gestation. His remarks indicated that the diagnosis may be a difficult one, but once made, appendectomy should be performed with all dispatch since the penalty for delay is so severe. Dr. Eastman reminded surgeons that they will remove some normal appendices but that the surgeon may be comforted by having spared the patient a hazardous mortality risk.

John V. Thomas, M.D.
Duluth, Minnesota

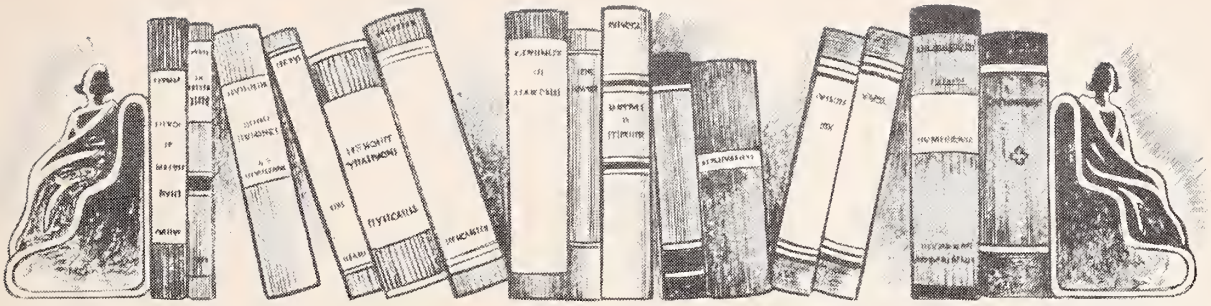
A Rose is a Rose

In the United States there is more space where nobody is than where anybody is. That is what makes America what she is.—Gertrude Stein

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A Conservative

A conservative is a man who does not think that anything should be done for the first time.—Frank Vanderlip



Book Reviews

CROSSEN'S SYNOPSIS OF GYNECOLOGY (ED. 6) — D. W. Beacham, M.D. and W. D. Beacham, M.D. C. V. Mosby Company, St. Louis, 1963. 371 pp. 106 illus. $7.50

This new edition of the Synopsis is written by the members of the Department of Obstetrics and Gynecology at Tulane University in New Orleans, Louisiana. It is designed for various medical specialists not dealing specifically with the practice of gynecology. This book is divided into 17 chapters each dealing with major gynecologic problems. Diseases of each anatomical site such as cervix and ovary receive a chapter as do medicolegal aspects of gynecologic and anatomy of female genitalia.

The specific chapters are condensed but the pertinent material is current. As an example, the problems of chemical induction of ovulation includes references to the recent drug releases such as Clomiphene.® The chapter on vaginal infections includes reference to the new drug Flagyl® for trichomoniasis. The book is well illustrated. Each chapter contains a current moderately extensive bibliography with several classical works cited and also recent additions to the literature through the year 1962.

The book seems to fulfill its purpose and would be recommended for the book shelf of those who want a current inexpensive gynecologic reference book.

W. N. Spellacy, M.D.
Minneapolis, Minn.

OBSTETRICS AND GYNECOLOGY, SECOND EDITION — J. Robert Wilson, M.D., Clayton T. Beecham, M.D. and Elsie Reid Carrington, M.D. 738 p $13.75. C. V. Mosby Company, St. Louis, 1963.

In the preface the authors state that the book is written with the basic idea to provide a textbook for medical students rather than for general practitioners or specialists.

The book is divided into chapters dealing with specific disease entities such as endometriosis, amenorrhea, pelvimetry and breech delivery. The chapters are arranged in a chronological sequence beginning with diseases of menstruation, pregnancy, tumors and finally menopause.

An interesting chapter is devoted entirely to psychology of women. In this chapter the authors explain how normal physiology is integrated with the emotional state. They emphasize also the need to suspect psychosomatic illness in patients with gynecologic complaints.

Although the chapter bibliographies contain recent references they are not extensive. Many statements are made in controversial areas without reference support. The illustrations are excellent.

Operative obstetrics and gynecology are entirely excluded.

William N. Spellacy, M.D.
Minneapolis, Minn.

HUMAN SEX AND SEX EDUCATION PERSPECTIVES AND PROBLEMS — Warren R. Johnson, Lea Febiger, Philadelphia, 1963.

This author has written a small book on sex and sex education in a very novel and helpful manner. The book does not include methods of teaching a course in "sex" or the curriculum for such a course. The book is concerned with the problems related to human sexuality and sex education. The author stresses how many of our present attitudes are the result of teaching of men who lived in an era where circumstances and knowledge were tremendously different from those of today. This past is conveyed by language and the author emphasizes the language of sex is in general a forbidden language which results in communication on the subject being unreasonably difficult.

One of the latter chapters is on theories of sex education and here the author discusses in a rather facetious manner seven theories of sex education.

All in all this is a book which will be helpful to physicians involved in premarital counseling and/or in treatment of patients with sexual problems.

Irving C. Bernstein, M.D.
Minneapolis, Minn.

Self-Made Man

I'm a self-made man, but I think if I had to do it over again, I'd call in someone else.—Roland Young

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Special Articles

Frontier Obstetrics Namkham Hospital 1962

M. DONALD OLMANSON, M.D.
St. Peter, Minn.

A Minnesota physician has been serving humanity in Namkham, Burma. His previous paper provided us an overview of medical and surgical practice in this frontier-like setting.

OBSTETRICAL PRACTICE at Namkham is in stark contrast to that prevailing in the United States. The abundance of certain complications, both obstetrical and medical, the lack of blood for transfusion, and a dearth of specialist consultations are the main differences. In addition, in Namkham midwives do all the deliveries except for Cesarean sections and forceps deliveries;* this includes craniotomies, inductions, versions and extractions, multiple births, and episiotomies.

Namkham Hospital is a nonsectarian, charitable institution located in Northeastern Burma near the Chinese border. Dr. Gordon S. Seagrave, who came here in 1922, built the hospital from a ten-bed mission hospital to its present 270 beds. Financial support comes from the American public (through the American Medical Center for Burma, Inc.), voluntary contributions from our patients, the U. S. Government (through Fullbright and PL 480 grants to the nurses' training school), and the Burmese Government. There are approximately 400,000 people living in the area served by the hospital and 6,379 inpatients were treated during 1962.

Namkham Hospital offers a four-year course leading to an RMN degree (the first three years — Registered Nurse and the fourth year — Midwifery) and in 1962 we had over 100 student nurses. These pupil nurses are required by the government to perform at least 20 deliveries before they graduate and therefore do all but the very complicated cases. Most of the patients are examined by one of the staff doctors before delivery. Those that are in advanced uncomplicated labor are usually seen after delivery. Routinely the patients receive a hemoglobin, urine albumin, and a blood pressure determination.

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*During 1962 all the forceps deliveries were done by G. S. Seagrave, M.D. and all the Cesarean sections by M. D. Olmanson, M.D.

A previous paper (Minn. Med. 46:595, 1963) covered all the patients discharged in January 1962. Among these were 46 parturients, 14 undelivered (false labor, morning sickness, medical diseases, etc.), and 11 others (post partum, tubal pregnancies, or abortions).

Fifty per cent of the 46 deliveries were complicated; about 20% had obstetrical complications (abnormal presentations, stillbirths, contracted pelvis, manual removal of the placenta, etc.) and 30% had medical complications (severe anemia—7.5 gm.% or less, malaria, ancylostomiasis, gonorrhea, tuberculosis, amoebiasis, etc.). The median hemoglobin was 8 gm.% which was, as expected, about 2 gm.% lower then the median hemoglobin of our other patients. The mortality in infancy and childhood was 34%; this figure is derived from the obstetrical histories of 43 multiparas who had previously borne 189 living children but at the time of this history-taking had only 124 still living. Obviously this percentage will, in time, become higher for this group since many of the children are still very young. The median length of hospital stay for parturients was six days and two-thirds left the hospital within five days of delivery (one-third stayed less than 48 hours after delivery).

The average birth weight for male babies was 6 lbs. 14 oz. and for females 6 lb. 8 oz.

Obstetrics

There were 553 obstetrical cases handled by our staff during 1962. This includes 34 patients who delivered on the way to the hospital and 56 who had home deliveries. There were six forceps deliveries and 32 Cesarean sections. One death occurred following a Cesarean section.

Racial Groups

Our patients came from a number of distinct racial groups; mixed marriages are uncommon. About 60% were Shan (an agricultural people of the same racial origin as the Thais), 14% Kachin (a seminomadic hill people similar to some of our American Indians), 11% Palaung (an agricultural hill people who raise mostly tea), and 8% Chinese (domiciled in Burma). The remainder were Burmese, the Indian races, Lisu, Chin, a few mixtures and one American (my wife).

Ages

Our youngest parturients were 16 years old (4) and the oldest were 45 (3). The median age was 27. Primagravidas accounted for 25% of the group and another 25% were gravida 2 or 3. Nearly 25% were gravida 7 or more, and over 10% (59) were gravida 10 to 15.

Associated Complications

Prenatal examinations and calcium-iron-vitamin supplements are made freely available in our outpatient department. Unfortunately very few patients come for care unless they are ill or already in labor. It is only in recent times that many of these people have accepted the idea of coming to the hospital for an uncomplicated delivery, and it will probably be some time before prenatal care becomes established. Accurate figures are not available but, if the birth rate is 40/1000, less than 10% of the babies in this area are born in the hospital. Since we are dealing with this select group the figures arrived at in this paper are probably not representative of the population at large.

Toxemia

There were ten patients with pre-eclampsia among the 463 hospital deliveries (2.2%). Cesarean sections were done on three (all with contracted pelvis); one had a forceps delivery and two had stillborns. In the 11 years preceding this study (covering about 4000 deliveries) there was one case of eclampsia; in February 1963 there was another. Rice is the staple food and obesity is uncommon.

Medical Diseases

Major medical diseases affect about one-third of our obstetrical patients, the most common being severe anemia, malaria, tuberculosis, hookworm, amoebiasis, gonorrhea, syphilis, and beri-beri. Accurate figures cannot be given because this group of patients was not "worked up" medically as well as the medical-surgical-pediatric patients; one-third stayed 48 hours or less following delivery.

Duration of Labor

Accurate timing of labor is particularly difficult under the circumstances here (very few pa-

tients own watches), but an approximation is made in all instances. About 40% are recorded as having had a labor of eight hours or less, 20% from 8 to 16 hours, and 25% from 16 to 24 hours. The remaining 15% were in labor over 24 hours, with 28 patients having been in labor for three to five days. Occipital deliveries accounted for 91.7% (LOA-44% and ROA 34% of the total); 4.8% were breech, 2.3% transverse, and 1.2% face presentation.

Many (515) deliveries were attended by the midwife staff. There were 36 women with stillborns who required a number of operative or manipulative procedures: internal podalic version and extraction (10), craniotomy (3), induction of labor by packing the cervix (3), and evisceration and extraction (1). Procedures done on the other parturients were manual removal of the placenta (15), repair of second degree tear (11), uterine pack for post partum hemorrhage (2), version and extraction for second twin (1), and episiotomy (19). There were no elective inductions when the baby was living and no third degree tears. There were six sets of twins and one set of triplets; the latter were delivered at home by our staff and two survived. Five babies were born with congenital deformities, four with hydrocephalus were stillborn and one with an incomplete harelip.

Cesarean Section

There were 32 Cesareans, (5.8% of total deliveries). There were a high number of medical complications including anemia (11 with 7.5 gm.% hemoglobin or less), infections (10 with a WBC above 13,400), diabetes (four with ++ urine sugar or more), pre-eclampsia (three with edema, ++ albumin and a blood pressure of 160/100 or more), malaria (two with P. falciparum in a blood smear and several with clinical malaria), and also gonorrhea +, hookworm + and E. cyst + (one each).

Supportive Infusion Therapy

We use dextran solution as a blood substitute since we rarely find blood available for a chronic case and virtually never on short notice. Only one patient (with 4.5 gm.% hemoglobin) received a transfusion and that was discontinued after 50 cc. because of a reaction. There was one fatality from blood loss; this patient arrived at the hospital in such profound shock that it is doubtful whether even quantities of whole blood could have saved her. It is interesting to speculate how much morbidity and how many fatalities may have resulted from giving blood to everyone with less than 10 gm.% hemoglobin as is done in some places. Routinely, no anesthesia was used. For complicated surgical cases inhalation anesthesia was given, usually chloroform.

Morbidity and Mortality

Stillbirths

There were 40 stillbirths among the 469 babies born in the hospital. Ten of them presented with a prolapsed arm and required internal podalic version and extraction; four were monsters (hydrocephalus); four (including one of the transverse presentations) were markedly premature; four died because of premature separation of the placenta, two had prolapsed umbilical cords; and one died of asphyxia during a breech forceps delivery. Because of limited laboratory facilities we could not accurately determine the cause of death in the remaining 16, but syphilis is undoubtedly the major killer. Blood antigen incompatibilities resulting in erythroblastosis fetalis are rare among the mongoloid races — only about 1% are Rh negative.

Neonatal Deaths

There were only three in-hospital neonatal deaths. One was a respiratory death following Cesarean section delivery; the other two infants weighed only two pounds at birth, one of whom lived for six weeks and weighed 3 lbs. 6 oz. when he acquired a respiratory infection and suddenly died (we have no incubator).

Incomplete Abortions

There were 42 incomplete abortions requiring surgical removal of the remaining products of gestation, and eight complete spontaneous abortions. A 39-year-old, para 7, with amenorrhea for ten months and an enlarged uterus, had a subtotal hysterectomy and was found to have a four-month-size retained abortion. Many of these patients have a very low hemoglobin and several were in shock when admitted. They commonly waited several days before entering the hospital. Some also had concurrent medical dis-

eases such as dysentery, malaria and tuberculosis.

Tubal Pregnancies

There were five tubal pregnancies which required salpingectomy. All were ruptured when admitted to the hospital; one had had pain for 20 days and another for two months before coming in. Three had extensive bleeding.

Hydatidiform Moles

Five patients had hydatidiform moles. Four were treated with curettage and the fifth with a subtotal hysterectomy. Another patient entered with vaginal bleeding and a hemoglobin of 4.5 gm.%. Ectopic pregnancy was suspected, but she was found to have a choriocarcinoma and died of uncontrollable hemorrhage following hysterectomy. The incidence of hydatidiform moles is from 1–2% in some hospitals (information from Dr. Daw Khin Si, Chief of Ob-Gyn, Rangoon College of Medicine).

Post Partum Complications

Forty-three of our patients entered the hospital because of post partum complications, 14 with puerperal infections (there were no typical cases among our deliveries although some had post partum fevers), seven with retained placenta, and four with retained fragments of tissue. Post partum hemorrhage was the primary diagnosis in four cases; seven came in with severe anemia.

There were 136 pregnant women who were discharged undelivered, most of them hospitalized with nausea and malaise of early pregnancy, false labor, or with various medical conditions. Eleven had gonorrhea or syphilis, ten severe anemia, nine malaria, seven intestinal parasites, six pulmonary tuberculosis, four amoebic dysentery, and three beriberi. This group constitutes the bulk of our prenatal care.

Summary

We deliver less than 10% of the obstetrical patients in this area — there are no other hospitals within 80 miles. The 553 deliveries done by the Namkham Hospital staff during 1962 are reviewed. About half had medical and/or obstetrical complications and there was one fatality following a Cesarean section.

Another 258 cases which may be considered para-obstetrical also have been reported. This includes abortions, tubal pregnancies, hydatidiform moles, threatened abortions, undelivered pregnant patients, and patients entering with post partum complications. There was one death from post partum hemorrhage in this group.

Our high incidence of complicated cases is due to a factor of selection and the high incidence of certain diseases in the general population.

Efficiency Curve

If a man's curve of efficiency is ascending at 45, and keeps on ascending just after that period, it may well move upward for his whole life; but if there is a turn downward at 45, he will never recover. — Nicholas Murray Butler

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Weaknesses

We all have weaknesses. But I have figured that others have put up with mine so tolerably that I would be much less than fair not to make a reasonable discount for theirs. — William Allen White

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Man is the only animal that blushes — or needs to. — Mark Twain

Maternal Deaths in Minnesota

· *Associated* · *with* · *the* · *Use* · *of* · *Pituitary* · *Substances**

D. W. FREEMAN, M.D.
ALEX BARNO, M.D.
M. P. BAKEN, JR., M.D.
Minneapolis, Minn.

Several general summaries of the results of the Minnesota Maternal Mortality Study have been reported, and in other papers some of its more specific aspects have been discussed. These are referred to in a recently published 10-year summary article.[1] The purpose of this article is to bring to the attention of Minnesota physicians the large and continuing role in maternal mortality played by pituitary substances. The material includes results from a survey of the maternal deaths in Minnesota associated with the use of pituitary extract during the 12-year period, 1950-1961. Data pertaining to the first 9 years of this period have been previously published.[2]

Obstetric and Nonobstetric Category

During the period of the study, a total of 549 deaths was studied. Three hundred and twenty-four were considered directly related to pregnancy and therefore "obstetric" in nature. The remaining 225 were classified as "nonobstetric." With the exception of 2 patients who died of so-called "Pituitrin shock," only patients who experienced labor and were therefore potential candidates for the administration of pituitary substances were considered. There were 185 patients in the obstetric category and 90 in the nonobstetric who experienced some labor. Pituitary substances were administered before or during labor to 75 (41 per cent) of the patients in the obstetric category and to 15 (17 per cent) in the nonobstetric one.

The material was administered for induction of labor in 61 instances and for stimulation of labor in the others. It was administered subcutaneously in 59 cases, by dilute intravenous drip in 25, and by both routes in six.

The Mechanism of Pituitary Deaths

Pituitary substances have been implicated in the production of maternal deaths by 4 different mechanisms. 1) Deaths resulting from excessive uterine activity, uterine rupture and hemorrhage, and 2) those due to so-called "Pituitrin shock" have been recognized almost as long as these substances have been used. 3) It has been suggested more recently that a relationship may exist between tumultuous labor following stimulation by pituitary substances and the development of amniotic-fluid embolism.[3] 4) It has further been shown that hemorrhage due to afibrinogenemia has been associated with the administration of those substances.[4-5] In these cases it is thought that an amniotic fluid infusion occurs which is not immediately fatal in itself but which produces fibrinogen depletion by bringing about intravascular fibrin deposition.

It is recognized that deaths by all of these mechanisms except "Pituitrin shock" can and do

*From the Minnesota Maternal Mortality Committee.

occur in spontaneous nonstimulated labors, but this sequence of stimulation by pituitary substance, the occurrence of tumultuous labor, and the development of one or more of these complications is often very striking. An analysis was therefore made of all the cases in which the patient was given pituitary extract; and the data relating to the deaths in these 4 categories: "Pituitrin shock," uterine rupture, amniotic-fluid embolism, and hemorrhage due to incoagulable blood, have been assembled.

Results

Pituitrin Shock

Two deaths were attributed to "Pituitrin shock." Brief case summaries follow.

Case 1–12

The patient was a 35-year-old para 2-0-0-2. Spontaneous delivery of an 8-lb. 14 oz. infant occurred after a 3-hour labor. Bleeding after delivery was thought to be somewhat excessive, and the patient was given 0.5 ml. of undiluted obstetric Pituitrin intravenously. Very shortly thereafter the blood pressure was 60/0, but the patient was alert and her skin was warm and flushed. The bleeding was controlled. The patient remained in shock despite the administration of 1800 cc. of blood over a 3-hour period. Signs of congestive failure then developed, and she died 6 hours after delivery. Autopsy showed bilateral hydrothorax, ascites, and pulmonary edema. Death was attributed to "Pituitrin shock" followed by congestive heart failure from administration of excessive amounts of blood and fluid.

Case 4–1

The second patient, a 38-year-old para 1-0-2-1, was delivered by elective cesarean section at 36 weeks of gestation because of diabetes and previous cesarean section. The procedure was carried out under local anesthesia and was uneventful up to the delivery of the baby. Following this, 1 ml. of obstetric Pituitrin was injected into the uterus, and 1 ml. intramuscularly. Almost immediately, peripheral vascular collapse developed and the patient died shortly thereafter. Autopsy disclosed no findings which could have accounted for the shock, which consequently was attributed to the Pituitrin.

Uterine Rupture

In 9 deaths from hemorrhage associated with uterine rupture and/or extensive lacerations of the birth canal, injudicious administration of Pituitrin or Pitocin was considered the primary cause. Six deaths followed subcutaneous administration and 3 were associated with the administration of dilute Pitocin solution intravenously.

In addition to the 9 verified cases of uterine rupture, in 5 others subcutaneous Pitocin or Pituitrin administration was associated with other factors which could have caused uterine rupture. These procedures included version and extraction, manual dilatation of the cervix, and difficult forceps extraction. In 4 of these 5 cases, the diagnosis of uterine rupture was not certain, as autopsies were not performed.

The 14 cases of verified or possible uterine rupture in which the use of pituitary substances was a contributing factor accounted for 38 per cent of all deaths from uterine rupture in the 12-year period and for 15 per cent of all deaths from hemorrhage.

Amniotic-Fluid Embolism

There were a total of 23 deaths from this cause in the 12-year period. In 11, oxytocin was administered to induce or stimulate labor. In 3 instances, there was no clear relationship between this and the occurrence of the amniotic-fluid embolism, but in 8 there appeared to be a direct association between the oxytocin administration, the production of tumultuous labor, and the appearance of symptoms and signs of amniotic-fluid embolism. Two of the 8 patients were given Pitocin intravenously and the other 6 Pitocin or Pituitrin subcutaneously. A representative case report follows.

Case 11–8

This patient was a registered 34-year-old para 1-1-0-2 who had an uneventful prenatal course. She was admitted to the hospital 1 week past term and again 10 days later for attempted induction of labor. On the first occasion she was given 6¾ minims of Pitocin subcutaneously in 8 doses over a 7-hour period beginning with a dose of ¼ minim. During the second hospitalization, a total of 11¾ minims of Syntocinon was administered in a 3½-hour period with the initial dose again being ¾ minim. Both inductions failed. She was admitted for the third time 4 weeks past term. Sterile vaginal examination showed the cervix to be 3 cm. dilated and the vertex at station O. Membranes were ruptured artificially and the patient was given ¼ minim of pitocin subcutaneously at 10:25 a.m. Strong uterine contractions began at 2-minute intervals 10 minutes later. After another 10 minutes the contractions became tetanic in nature and at 10:55 she developed a generalized convulsive seizure. She then developed respiratory difficulty and cyanosis. At 11:00 o'clock no blood pressure was obtainable, nor were fetal heart tones audible. Intravenous fluids were started. She was given 3¾ grains of Sodium Amytal intravenously and oxygen was administered, but she died undelivered at 11:30 a.m. Autopsy showed partial separation of the placenta, and

microscopic examination of the lungs showed findings typical of amniotic-fluid embolism.

Afibrinogenemia

In the 12-year series there were 5 verified deaths from hemorrhage due to failure of the blood to coagulate, and in a sixth case this was considered the probable cause. In 5 of the 6 cases Pitocin was given before delivery. The following case summary is typical of this group.

Case 8–8

This patient, a 36-year-old para 6-0-1-5, was admitted at 42 weeks' gestation, having irregular uterine contractions. One minim of Pitocin was given subcutaneously. Fifteen minutes later, although contractions were occurring at 2-minute intervals, 2 more 1-minim doses of Pitocin were given at ½-hour intervals. Spontaneous delivery of a mildly asphyxiated 9-lb. 2 oz. infant occurred 2½ hours after Pitocin administration was begun. Immediately after delivery of the placenta, excessive vaginal bleeding was seen. There were no lacerations, and intrauterine palpation showed an intact uterus. It was noted that the blood failed to clot (blood drawn for cross-matching and kept in the refrigerator was still unclotted 2 weeks later). Despite the use of oxytocics and intrauterine packing, bleeding persisted, and the patient died of hemorrhagic shock 1½ hours post partum.

Discussion

It is clear that pituitary substances were used in undelivered patients in the maternal mortality series with much greater frequency than is generally considered indicated. In a series of 22,000 deliveries Atherton found that when Pitocin was used for uterine inertia, indicated inductions, and certain bleeding problems, the frequency of its use was about 3 per cent.[6] Eastman reports an identical figure of 3 per cent for its use at the Johns Hopkins Hospital.[7] In contrast, patients in the maternal mortality series were given some form of oxytocin before delivery almost 11 times more frequently (32.7 per cent). Of those patients who died of obstetric causes, over 40 per cent had labors either induced or stimulated by pituitary substances.

Subcutaneous Small Dose Unsafe

This study also shows that even very small doses of these substances are unsafe when given subcutaneously. Rupture of the uterus occurred in 1 case after the use of only 2 doses of 1 minim each of obstetrical Pituitrin given for the purpose of inducing labor. In the case summarized above, the patient was given only a single dose of ¼ minim, following which she developed tetanic uterine contractions and amniotic-fluid embolism. It is believed by many that there is no danger of uterine rupture resulting from subcutaneous Pitocin given after the cervix is fully dilated, but 3 cases of uterine rupture occurred in this series under just these circumstances. Another hazard of subcutaneous administration of this material is the possibility of error in dosage. This is illustrated in the series by a patient who was given 1.0 ml. of obstetric Pituitrin subcutaneously by mistake. Rupture of the uterus and death from hemorrhagic shock followed.

Intravenous Dilute Solution Safer

It has been quite generally advocated that subcutaneous or intramuscular administration of pituitary substances before delivery be given up in favor of administration of a dilute solution intravenously. This is considered a much safer method because the amount given is easier to regulate. The study illustrates, however, that this method too, has its hazards unless rigidly controlled and closely supervised. It is widely believed, for example, that excessive sensitivity to oxytocin will be manifested early and that therefore the administration of a dilute solution intravenously need be very closely watched only in the first half hour. However, the 3 uterine ruptures in this series occurred after 3, 3½ and 5 hours of I.V. Pitocin administration. The total amounts given before the ruptures occurred were approximately 4, 4½, and 6 units respectively. These are not massive doses, but it might be pointed out that recent studies have indicated that very much smaller doses are effective. Caldeyro-Barcia, whose fundamental studies included precise measurements of pressures developed within the myometrium as well as within the amniotic sac, found that administration of from ⅛ to ½ unit of oxytocin per hour produced uterine activity at term equivalent to that of normal labor.[8] Similarly, Theobald has found that minimal doses, 2 to 4 units (0.2 to 0.4 ml.) in 1000 ml. given at the rate of 20 to 40 drops per minute are effective clinically in stimulating or inducing labor at term.[9] These doses are smaller and doubtless safer than those being recommended in current text books. An amount approximating ½ unit per hour may well come to be considered the maximum safe dose.

The large role being played by pituitary

substances in maternal mortality in Minnesota is made clearly evident by the following comparisons. The 29 deaths in which its use was considered a contributing factor account for 9 per cent of all obstetric deaths in the 12-year period. Oxytocin administration ranks fourth behind hemorrhage, infection, and toxemia as a cause of death. The 29 deaths can be compared with the 27 deaths attributed to heart disease, the 23 to amniotic-fluid embolism, and the 16 to anesthesia. There is, of course, overlapping with 19 of the "pituitary deaths" also counted in the hemorrhage group and 8 in the amniotic-fluid embolism group.

Of the 29 deaths, 17 were deemed preventable. The number of preventable deaths associated with the use of oxytocin was exceeded in this series only by preventable deaths from hemorrhage and toxemia.

Summary

The relationship to maternal deaths of administration of posterior pituitary substances in the Minnesota Maternal Mortality series for the years 1950-1961 has been analyzed. Over 40 per cent of patients who experienced labor and who died of obstetric causes, and 17 per cent of those whose deaths were not directly related to the pregnancy had labors either induced or stimulated by pituitary substances. This is contrasted with other reports which suggest that definite indications for their use occur in only 3 per cent of pregnancies.

In 9 deaths due to hemorrhage following uterine rupture, injudicious use of pituitary substance was considered the primary etiologic factor. In 3 of these, Pitocin was administered in dilute solution by slow intravenous drip. In 5 deaths from hemorrhage caused by probable uterine rupture, subcutaneous administration of pituitary substance was considered one of several possible factors responsible. The total of 14 accounted for 38 per cent of all deaths from uterine rupture and for 15 per cent of all deaths from hemorrhage in the 12-year period.

Two deaths were caused by typical "Pituitrin shock."

Of a total of 23 deaths from amniotic-fluid embolism, 8 occurred in association with the administration of pituitary substance and the development of tumultuous labor.

Of 6 deaths from hemorrhage due to incoagulable blood (5 verified and one probable) in the 12-year period, 5 involved patients whose labor was induced or stimulated by Pitocin. Two of the 8 patients in the amniotic-fluid embolism group and 2 of those who developed afibrinogenemia were given Pitocin in dilute solution by slow intravenous drip.

The total of 29 cases in which pituitary substance was considered a direct or possible contributing factor in causing death accounted for 9 per cent of all deaths from obstetric causes. The total of 29 ranked fourth behind hemorrhage, infection, and toxemia and ahead of such factors as heart disease, amniotic-fluid embolism, and anesthesia.

Seventeen of the 29 were considered preventable. Only hemorrhage and toxemia accounted for more preventable deaths.

Recent recommendations regarding the safety and effectiveness of very dilute solutions of pituitary substances used intravenously are discussed.

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Meetings And Announcements

DECEMBER

American College of Physicians (Texas regional), San Antonio, Dec. 15. Info: Hatch W. Cummings, Jr., M.D., 1234 Hermann Professional Bldg., 6410 Fannin St., Houston 25.

American Association for the Advancement of Science, Cleveland Hotel, Cleveland, Dec. 26-30. Info: R. L. Taylor, 1515 Massachusetts Ave. NW, Washington 5, D.C.

International Convention of Missionary Medicine, Wheaton, Ill., Dec. 27-30. Info: Christian Medical Society, 1122 Westgate, Oak Park, Ill.

Medical Students Aid Society, Bellevue-Stratford Hotel, Philadelphia, Dec. 29-31. Exec Sec: Abram H. Persky, M.D., 1205 Spruce St., Philadelphia.

JANUARY — 1964

Woman's Auxiliary, Minnesota State Medical Association, Mid-Winter Board Meeting, January 21, Radisson Hotel, Minneapolis. Contact: Mrs. Leo W. Fink, 6041 Zenith Avenue South, Minneapolis.

Los Angeles Radiological Society, Los Angeles, January 8. Exec Sec: Bernard J. O'Loughlin, M.D., Department of Radiology, UCLA Center for the Health Sciences, Los Angeles 24.

Minnesota Academy of Ophthalomology and Otolaryngology Meeting, January 10, Minneapolis Athletic Club, and January 18-19 Trialogical Meeting at Rochester, Minnesota.

American Therapeutic Society and the Minnesota Heart Association Symposium, January 17-18, Radisson Hotel, Minneapolis. Contact: James Kelly, M.D., Minnesota Heart Association, 1821 University Avenue, St. Paul 4, Minnesota.

University of Miami and University of Florida Schools of Medicine Postgraduate Seminar in Anesthesiology, Miami, Florida, January 5-8. Contact: Frank Moya, M.D., University of Miami School of Medicine, Miami.

University of Colorado General Practice Review, January 12-18, Denver. Contact: Office, 4200 East Ninth Avenue, Denver.

American College of Surgeons (sectional meeting), Lord Baltimore Hotel, Baltimore, January 27-29. Sec: Samuel J. Harbison, M.D., 40 E. Erie, Chicago 11.

American Academy of Orthopaedic Surgeons, Palmer House, Chicago, January 18-23. Exec Sec: John K. Hart, 29 E. Madison, Chicago 2.

ANNOUNCEMENTS

Applications are now being accepted for the E. V. Allen Memorial Scholarship. Predoctoral and postdoctoral students interested in three months' cardiovascular study at the Mayo Clinic may obtain information from the Minnesota Heart Association, 1821 University Avenue, St. Paul, Minn.

* * *

The next scheduled examination (Part II), oral and clinical, will be conducted for all candidates to the American Board of Obstetrics and Gynecology at the Edgewater Beach Hotel, Chicago, Illinois by the entire Board, April 27-May 2. Candidates will be sent notice of examination dates.

* * *

University of Minnesota Continuation Medical Courses.

January 6-10	Electrocardiography (Intermediate)
February 10-14	Proctology
March 9-11	Psychiatry
March 17-20	Internal Medicine
April 3-4	Trauma
April 23-25	Gynecology

The young man who has not shed tears is a savage, and the old man who will not laugh is a fool.—George Santayana

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Medical Economics

As Minnesota Editors See It

Minnesota newspaper editors are expressing an increasing concern over the Administration's attempts to provide universal health care for our nation's aging population through the Social Security mechanism. A number of these comments have been reproduced in the following column for your information. Here is how these editors stand on Fedicare.

Where's the Proof?

WAYZATA HERALD points out that "it has been claimed that the American people want the King-Anderson bill — that is, the Medicare bill, which would provide a variety of medical services to everyone drawing social security benefits, whether they wanted them or not, and whether they needed them or not.

"It's one thing to make a claim — and a very different thing to prove it.

"There is some factual evidence on this matter — and it is impressive by any standard. Members of Congress from districts in Ohio, Michigan, Illinois, South Dakota, New Jersey, California and Pennsylvania have polled their constituents asking for their opinions on Medicare. In every case the majority was opposed — usually by very substantial margins.

"Only two polls approved the increase in social security taxes to finance the plan.

"This is a remarkable showing, particularly in view of the all-out campaign, directed from Washington, designed to sell Medicare to the American people. And it certainly is not the result of any callous disregard on the part of the public, in any age group, to the medical problems of the aged. It is instead based on the known fact that a very large percentage of the elderly are able to meet their medical costs; that both federal, state and local systems exist and are functioning to aid those who cannot; and last, but not least, that Welfare Statism has gone too far and must be checked. Medicare is an excellent place to check it."

Insurance for Aged

THE AUSTIN DAILY HERALD, July 22, 1963 — "Many Americans who are over 65 are buying a radically new health insurance, one which can be obtained without examination or without any questions being asked, even though the applicant be more than 100 years old.

"Though first sold in 1959, says the Wall Street Journal, this insurance, in which premiums are roughly comparable to ordinary health insurance for the elderly which selects only lower-risk individuals, now covers more than two million persons, or about one out of every nine U. S. citizens over 65. Almost 85% are insured by either Mutual of Omaha, which pioneered the plan, or by Continental Casualty Co.

"The plan was more or less started as the answer to President Kennedy's proposal for Medicare. The insurance companies had to meet the demand or the government would meet it. Mutual of Omaha says it breaks even on the plan while Continental Casualty says it makes a profit of about one per cent.

"The number of elderly who have coverage is expected to zoom. Many other organizations are now offering similar plans.

"By offering a policy for the elderly virtually at cost, the insurance companies are helping to make it less necessary for government to set up a health program. The thought occurs to us that a nationwide program in which the doctors and hospitals would give their services at cost to those age 65, together with health insurance at cost, would provide a far better program than the government could ever devise. It would also remove for the medical association its great fear that the nation may some day adopt socialized medicine.

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"An insurance program for the elderly with medical, hospital and insurance fees at cost, would make the premium within reach of virtually all of the elderly. The rest could continue to receive medical care under the present old age assistance program. It would be a program far more effective than either Kennedy's medicare, which would cover only hospitalization, or Kerr-Mills, favored by the doctors.

"Real progress towards the solution of that vexing problem of providing medical care for the elderly who have low incomes, could be made through this type of joint effort by insurance companies, doctors and hospitals."

Not a Problem — But an Opportunity

LESTER PRAIRIE NEWS, August 29, 1963 — "The controversy over Medicare — the scheme to provide certain government medical benefits to everyone receiving social security payments, whether they want them or need them — has obscured the true old-age health issue, if issue is the proper word. Medicare's proponents assert or at least intimate that the elderly population is in dire straits, and that only a multi-billion dollar Welfare State program can adequately help them.

"Some years ago the American Medical Association set up a Committee on Geriatrics to look into the particular diseases of old age. It found, believe it or not, that the problems it was designed to investigate did not really exist! So it moved into other areas — and here are the general conclusions it came to, based on a mass of evidence.

"1. There are no diseases that occur just because of the passage of a certain number of years. 2. There are no problems of people over 65, except those imposed by retirement, that are not shared by all other age groups. 3. Most illness and deterioration are a result of environment, and can be modified by a change of environment. 4. The term 'problems of aging' is fallacious — a more accurate term would be the 'opportunities of aging.' 5. The key to successful aging is successful living.

"To arbitrarily say that once a man or woman has reached a certain age he becomes another person, and falls into utterly different medical and financial categories than he did the day before, is to propound a fallacy and to do these people a grave injustice. The pro-Medicare arguments may be good political arguments — though even that has yet to be established — but they certainly aren't good or accurate medical, financial or social arguments."

Board of Medical Examiners

LICENSE OF ST. PAUL PHYSICIAN REVOKED FOLLOWING ABORTION CONVICTIONS

Re: In the Matter of the Revocation of the License of Morris Green, M.D.

On November 1st, 1963 the Minnesota State Board of Medical Examiners revoked the license to practice medicine held by Morris Green, M.D., 59, whose medical office has been located since May 1963 at 965 Payne Ave., St. Paul, Minnesota. Dr. Green appeared at a hearing before the Board on November 1st and admitted the truth of the charges in a citation which had previously been served upon him on August 26th, 1963. Dr. Green had been charged in that citation with immoral, dishonorable and unprofessional conduct in that he had been convicted in Los Angeles, California of two counts of abortion in 1951, and had also been convicted of the crime of abortion in the same city in February 1961, at which time he was placed on probation by the Court for five years upon condition that he serve the first nine months in the county jail.

Dr. Green, who was born in Russia on November 15th, 1904, received an M.D. degree from the University of Minnesota in June 1931, having been licensed in June of the previous year to practice medicine in this state after being granted an M.B. degree. In 1938 Dr. Green went to Los Angeles, California to practice and, except for a stay in Israel in 1958 and 1959, he remained in California until he returned to Minnesota in May of this year. Dr. Green's California medical license had been revoked in March 1962. According to Dr. Green, he had limited his practice to "eye work" since returning to Minnesota.

Minnesota State Board of Medical Examiners
J. P. Medelman, M.D., Secy.



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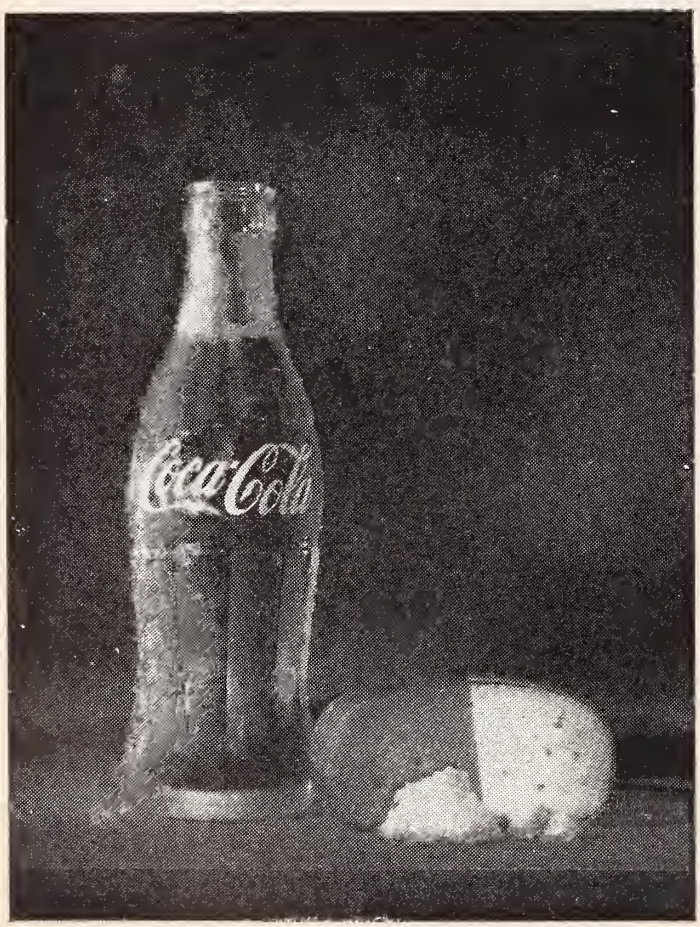
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The Blue Shield

More News

Identification Card:

Blue Shield of Minnesota will issue new identification cards beginning in December to all non-group subscribers.

The new "I.D." cards are printed on blue paper. This change will make the Blue Shield identification card easier to identify at-a-glance and will distinguish the Blue Shield identification card from those of other organizations.

The new card, which will be issued each time a non-group subscriber receives his billing from Blue Shield, measures about two inches wide by four inches high. Each subscriber will receive two of these cards — one for himself and one for his spouse.

The compact new card contains approximately the same information as the present group I.D. cards and also the former non-group I.D. cards. Shown is name, contract number, date of current effective coverage as well as whether the contract covers diagnostic lab and x-ray, major medical or major hospital.

Included on each card is a section for the Blue Shield hospital expense portion. If this section is not completed by Blue Shield, then the subscriber does not have the Blue Shield hospital rider.

Claims Going Up:

In all probability, this will be a record year for claims received by Blue Shield.

Through October, 1963, two records have been reached:

— Blue Shield received by far and away more claims than in any other previous year.

— October was the month which surpassed all other previous months in the number of claims.

Total number of new claims through October was 319,157. This number is 23,500 more than the same period in 1962. In addition, October had 35,710 new claims — the greatest amount ever received in any one month by Blue Shield.

Expansion:

Blue Shield has expanded its present line of IBM equipment.

The move is designed to further mechanize Blue Shield "paperwork" save money and provide better and faster service to both physicians and subscribers.

The new equipment is IBM's magnetic storage units. This equipment will in time replace the manual punch-cards on which subscriber information is placed. With the new IBM equipment, information may be retrieved at a much faster rate for better service.

In addition to large savings in time and material, the new equipment is expected to cut other costs about $650 a month. New applications of the machine, in addition, will provide Blue Shield management further flexibility for management controls.

New Controller:

Blue Shield of Minnesota has appointed James H. Roth to the newly created position of controller.

Mr. Roth was with Minneapolis General Hospital as controller until November 4, 1963. He is also a veteran of other "Blue" work, including nine years as manager of Wisconsin Blue Cross's accounting department, where he also established a control department.

In his new position, Mr. Roth will be responsible for supervision of Blue Shield's actuarian-underwriting, accounting, cost and budgetary control departments.

Vegetarianism

Vegetarianism is harmless enough, although it is apt to fill a man with wind and self-righteousness.—Robert Hutchinson

---

A Radical

There are two kinds of fools. One says, "This is old, therefore it is good." The other says, "This is new, therefore it is better."—Dean Inge

ANNOUNCING

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GUEST SPEAKERS

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Adolph Rostenberg, Jr., M.D., Chicago, Ill.—*Dermatology*
Arthur P. Klotz, M.D., Kansas City, Kans.—*Gastroenterology*
J. Roswell Gallagher, M.D., Boston, Mass.—*General Practice*
Roger B. Scott, M.D., Cleveland, Ohio—*Gynecology*
George R. Herrmann, M.D., Galveston, Tex.—*Internal Medicine*
William C. Thomas, Jr., M.D., Gainesville, Fla.—*Internal Medicine*
John B. Reckless, M.D., Durham, N. C.—*Neuropsychiatry*
Robert A. Cosgrove, M.D., Jersey City, N. J.—*Obstetrics*
Roy O. Scholz, M.D., Baltimore, Md.—*Ophthalmology*
Otto E. Aufranc, M.D., Boston, Mass.—*Orthopedic Surgery*
Paul H. Holinger, M.D., Chicago, Ill.—*Otolaryngology*
Paul K. Lund, M.D., Seattle, Wash.—*Pathology*
Margaret Lyman, M.D., New York, N. Y.—*Pediatrics*
David S. Carroll, M.D., Memphis, Tenn.—*Radiology*
C. Barber Mueller, M.D., Syracuse, N. Y.—*Surgery*
Lloyd M. Nyhus, M.D., Seattle, Wash.—*Surgery*
John K. Lattimer, M.D., New York, N. Y.—*Urology*

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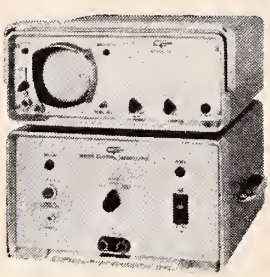
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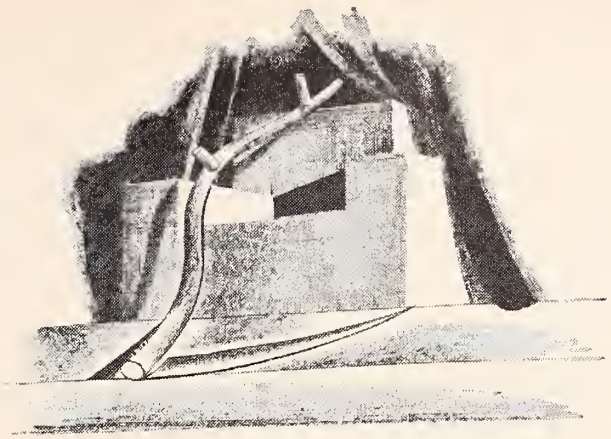
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In Memoriam

DR. ANDREW CHRISTIANSEN

Dr. Andrew Christiansen, 77, veteran St. Paul physician died November 3rd. He received his degree in medicine from the University of Minnesota Medical School and lived all his life in the St. Paul area.

He was a former chief of staff at Bethesda hospital, a member of the Ramsey County Medical Society, a 50 Club and Life Member of the Minnesota State Medical Association and a member of the American Medical Association.

He is survived by a daughter and a son.

DR. OLAV HEGGE

Dr. Olav H. Hegge, 91, founder of St. Olaf Hospital in Austin where he practiced for 70 years, died November 4th. He was born in Norway and received his degree in medicine from the University of Illinois.

Dr. Hegge was the founder of the Mower County Medical Society serving as its first secretary and a 50 Club and Life member of the Minnesota State Medical Association. He was also a member of the American Medical Association.

He is survived by his daughter.

HAROLD R. LELAND

Dr. Harold R. Leland, 65, former chief of staff at Fairview died October 21. He was born at Kenyon, Minnesota and received his degree in medicine from the University of Minnesota.

Dr. Leland was a member of the Hennepin County Medical Society, the Minnesota State Medical Association, the American Medical Association, the American Academy of Obstetrics and Gynecology, the American College of Surgeons, the American Board of Obstetrics and Gynecology.

He is survived by his wife.

WILLIAM S. HITCHINGS

Dr. William S. Hitchings, 79, former Lakefield physician, died in Phoenixville, Pennsylvania, October 2nd. He was born in Sutherland, Iowa and graduated from the University of Minnesota School of Medicine. Dr. Hitchings practiced first in Belgrade and in 1915 moved to Lakefield where he practiced until 1953.

He is survived by his wife, one son and a daughter.

Prayer

As a physician, I have seen men, after all other therapy had failed, lifted out of disease and melancholy by the serene effort of prayer.—Dr. Alexis Carrel

---

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Physician's Diary

Dr. M. J. Lindahl, Sherburn's physician for twenty years, was honored by the entire town at an open house on the occasion of his anniversary.

* * *

Dr. O. M. Heiberg of the Worthington Clinic has been elected a trustee of the Minnesota Medical Foundation, and **Dr. Waltman Walters,** emeritus senior surgeon of the Mayo Clinic, has been elected a member of the Leopoldian German Academy of Natural Science.

* * *

Dr. E. A. Thayer of Fairmont is the new president-elect of the Minnesota chapter of the Academy of General Practice. **Dr. William H. A. Watson** of St. Paul was elected president; **Dr. Chester A. Anderson** of Hector, vice president, and **Dr. Herb Huffington** of Waterville, secretary-treasurer.

* * *

Bethesda Hospital, Crookston, elected **Dr. Donald E. Stewart** chief of staff and president of the executive committee of the medical staff at its recent meeting. **Dr. O. K. Behr** was elected vice president and **Dr. H. M. Wikoff,** secretary.

* * *

Dr. John Gisvald of Roseau was named chief of staff and president of the medical staff at the new Roseau Area Hospital.

* * *

Dr. C. Walton Lillehei, University of Minnesota surgery professor and heart surgeon, recently received one of the six Gairdner Foundation awards for his contribution to the advancement of scientific medicine.

* * *

New Locations: Dr. Theodore Lester formerly of Browns Valley has joined the Fridley Medical Center. . . . **Dr. Robert Cullen** of Wells opened up a practice in Elmore. . . . **Dr. Robert Pierce** of North Mankato opened up a medical practice in Mt. Lake. . . . **Dr. Francis E. Demarais** has joined Henry Clinic in Milaca. . . . **Dr. Paul A. Stahler** of Jordan joined the staff of Armour and Company in South St. Paul. . . . **Dr. Ed Litin** has been named Chief of the Section of Psychiatry at the Mayo Clinic. . . . **Dr. William Dorsey** has joined the Minneapolis Clinic of Psychiatry and Neurology.

* * *

Dr. Norman A. Christensen of the Mayo Clinic received a special medical film citation from the World Medical Association at its 17th annual assembly.

* * *

Newly elected president of the Alpha Omega Honor Medical Society is **Dr. Victor Johnson,** director of the Mayo Foundation.

* * *

Dr. Gaylord W. Anderson, director of the School of Public Health, University of Minnesota has been named to receive the Sedgwick Memorial medal, the highest award given by the American Public Health Association.

* * *

Dr. George W. Lund, pediatrician of the St. Louis Park Medical Center, has been made a diplomate of the American Board of Pediatric cardiology, and **Dr. James T. Priestley,** chairman of the board of governors of the Mayo Clinic, was named president-elect of the American College of Surgeons at its recent meeting in San Francisco.

* * *

Dr. John Coe, chief pathologist at General Hospital in Minneapolis, has been appointed the Hennepin County Medical examiner. Dr. Coe will assume his responsibilities on January 1.

* * *

Dr. Robert Howard, dean of the University of Minnesota college of medical sciences has been appointed to the newly established national advisory research resources committee. The committee was established to review applications for grants-in-aid relating to research and training.

* * *

Doctors Margaret A. Holbrook, Richard W. Wagoner, William J. Johnson and **David F. Reese** have been appointed to the consulting staff of Mayo Clinic.

The Church after all is not a club of saints; it is a hospital for sinners.—George Craig Stewart

Classified

Classified advertising rates are twenty (20) cents a word; minimum monthly charge $5.00; key number, fifty (50) cents additional. Remittance should accompany order.

Replies to advertisements with key numbers should be mailed in care of MINNESOTA MEDICINE, *496 Lowry Medical Arts Bldg., St. Paul 2, Minn. 55102*

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Bibliography: 1. Williams, R. H.: Textbook of Endocrinology, Ed. 3, Saunders, Philadelphia, 1962, p. 610. 2. Gordon, E. S.: Metabolism 11:819, 1962. 3. Grodsky, G. M. et al.: Metabolism 12:278, 1963. 4. Sadow, H. S.: Metabolism 12:333, 1963. 5. West, K. M. and Tophoj, E.: Metabolism 10:689, 1961. 6. Yalow, R. S. and Berson, S. A.: Diabetes 9:254, 1960. 7. Weller, C. et al.: Scientific Exhibit, A.M.A., June 1962. 8. Weller, C. et al.: Metabolism 11:1134, 1962. 9. Radding, R. S. et al.: Metabolism 11:404, 1962.

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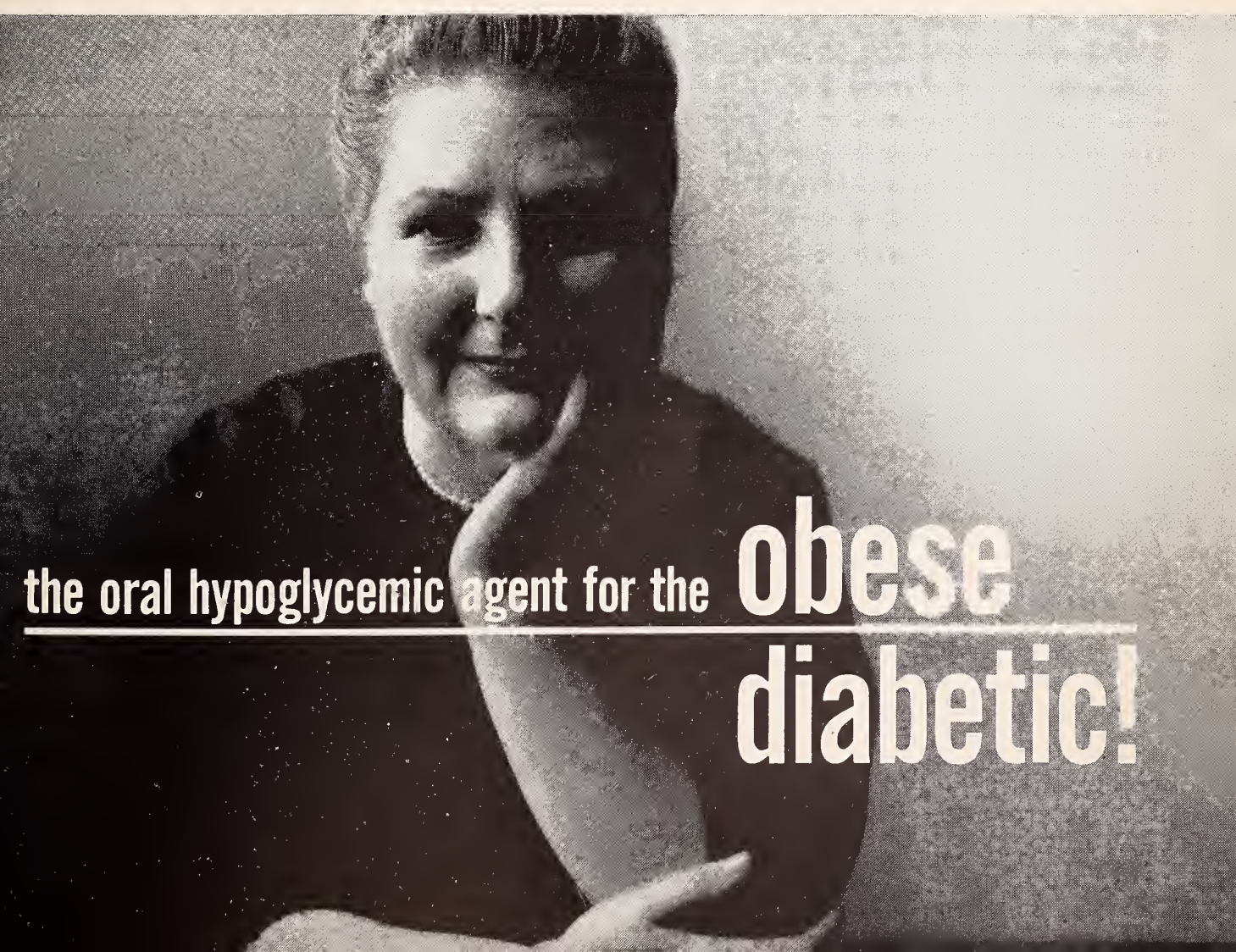
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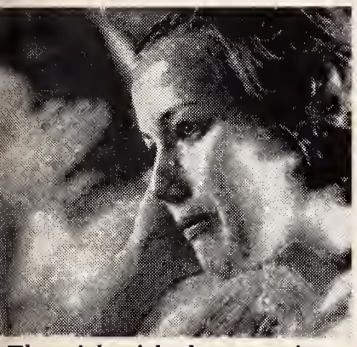
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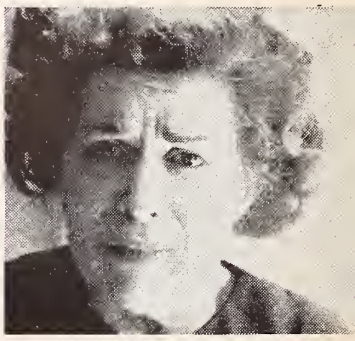
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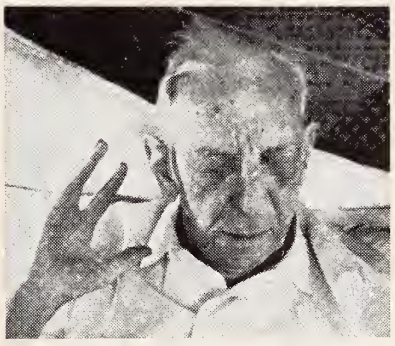
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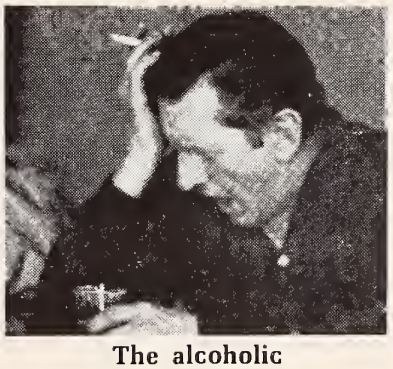
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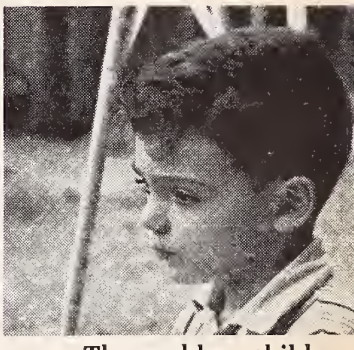
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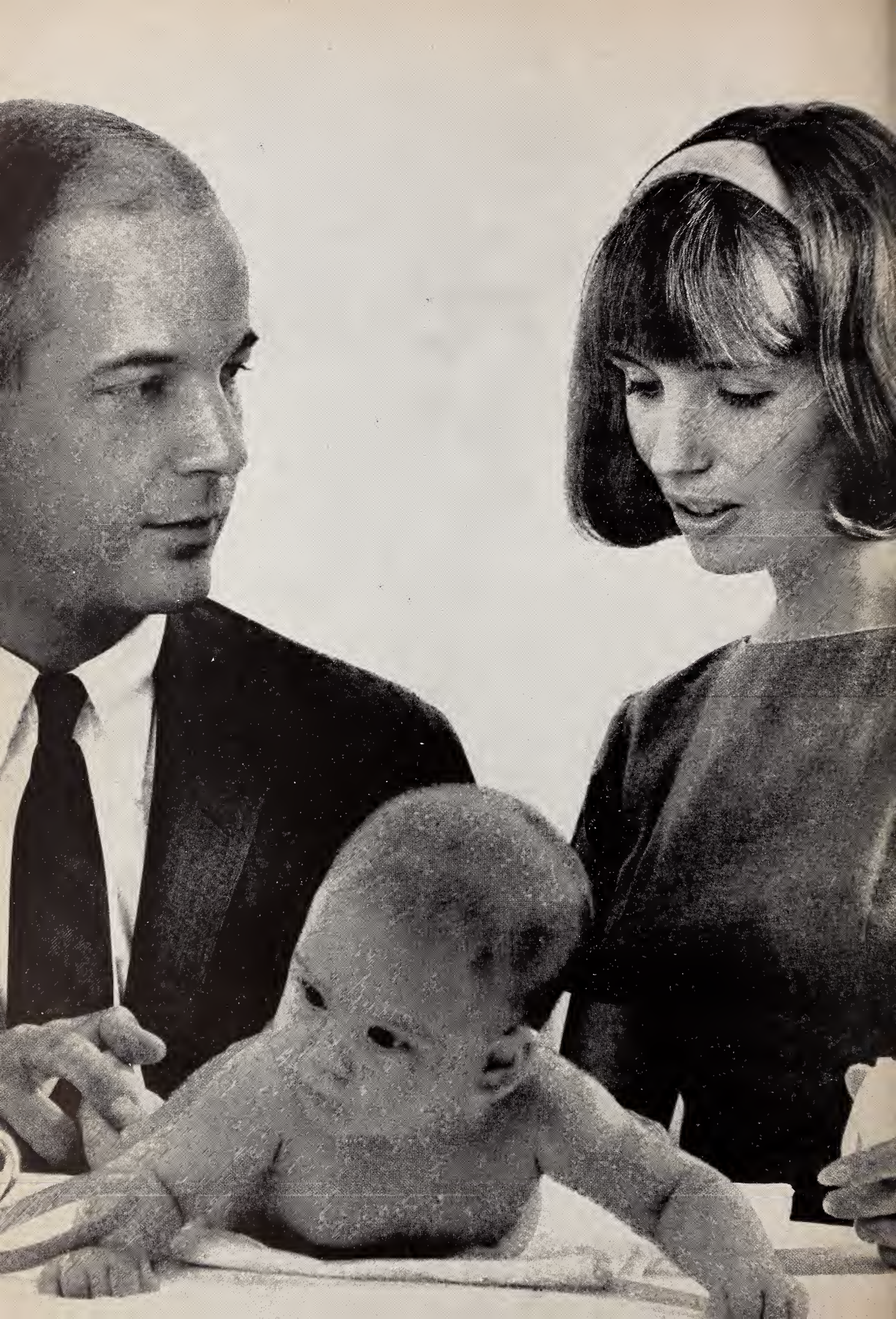
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*Donnelly, J.: A.M.A. Arch. Environmental Health 6:697, June, 1963

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